

M^edical

TIMES

THE JOURNAL OF GENERAL PRACTICE

Emergency Treatment of Coma (refresher)

Clinico-Pathological Conference

Review of Bundle Branch Block

Cytology in General Practice

The Sublobar Bronchopulmonary Segments

Intestinal Obstruction

Treatment of Pain from Cancer

Vaginal Bleeding at the Menopause

Ambulatory (Office) Surgery

Editorials

Contemporary Progress

Medical Book News

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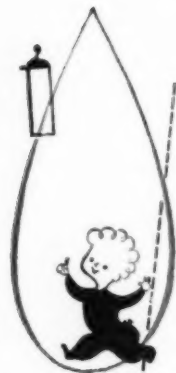
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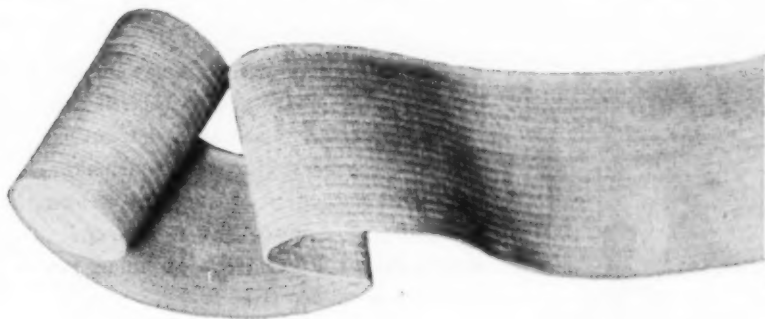
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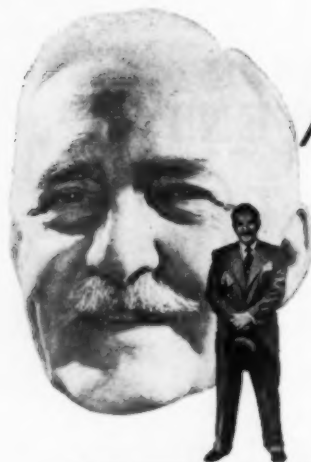
CONTENTS

| | | |
|--------------------------|--|-----|
| Feature Articles | Review of Bundle Branch Block | 735 |
| | Richard P. Johnson, M.D., F.A.C.P. Colonel, M.C., U.S.A. | |
| | Cytology in General Practice | 751 |
| | Roland A. Loeb, M.D. | |
| | Sublobar Bronchopulmonary Segments— Clinical Importance | 759 |
| | George R. Krause, M.D. Mortimer Lubert, M.D. | |
| | Treatment of Pain from Cancer | 767 |
| | Wallace P. Ritchie, M.D. | |
| | Problems in Intestinal Obstruction | 773 |
| | Philip Thorek, M.D., F.A.C.S. | |
| | Vaginal Bleeding at the Menopause | 783 |
| | Edward N. Cartnick, M.D. | |
| Refresher Article | Emergency Treatment of Coma | 743 |

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CONTENTS

| | | |
|------------------------------|--|-----|
| Case Reports | Clinico-Pathological Conference | 779 |
| Office Surgery | Aseptic Treatment of Wounds | 788 |
| Editorials | Nutrition the Basic Factor in Life | 796 |
| | Biologic Assault and Battery | 797 |
| | Plausibilities and Realities | 797 |
| | Descent to Avernus | 797 |
| | Relation of Weight to Longevity | 797 |
| Contemporary Progress | Obstetrics | 798 |
| | Harvey B. Matthews, M.D., F.A.C.S. | |
| | Gynecology | 801 |
| | Harvey B. Matthews, M.D., F.A.C.S. | |
| Annual Index | | 806 |
| Departments | Letters to the Editor | 18a |
| | Modern Medicinals | 32a |
| | Modern Therapeutics | 60a |
| | News and Notes | 74a |
| | Classified Advertising | 94a |



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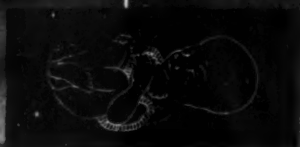
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1. Gitman, L., and Kaplowitz A.: Use of diethylstilbestrol in complications of pregnancy. New York State J. Med. 50:2823: 1950.
2. Ross, J.S.: Use of diethylstilbestrol in the treatment of threatened abortion. N. Nat. M.A. 43:20, 1951.
3. Karnaky, K.J.: Am. J. Obst. & Gynec. 58,622. 1949.

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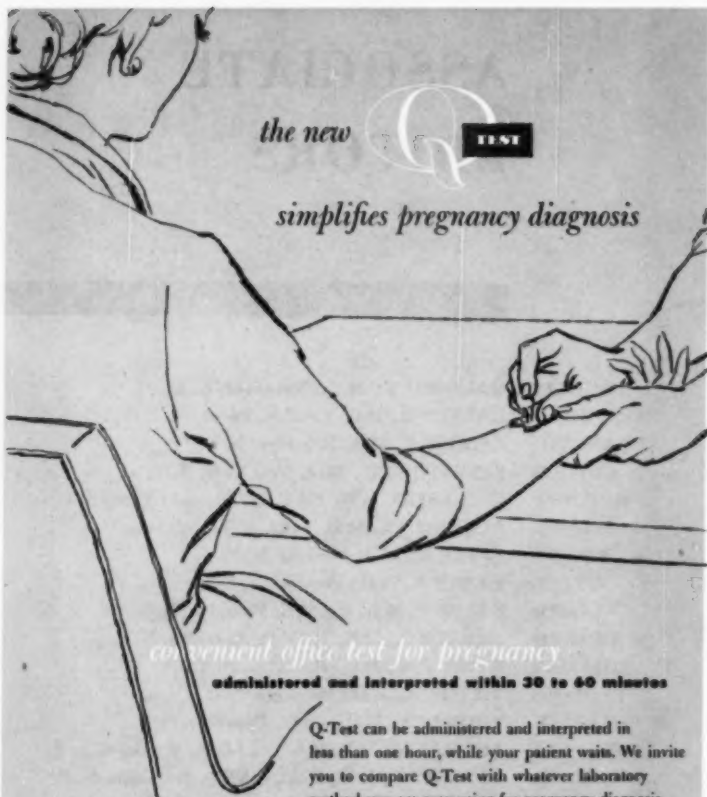
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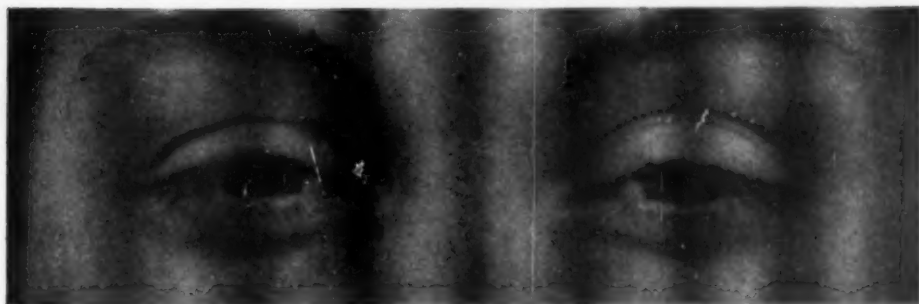
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1. The Nutrition of Industrial Workers; Second Report of the Committee on Nutrition of Industrial Workers, Food and Nutrition Board, National Research Council. Reprint and Circular Series No. 123. (Washington, D. C.: National Research Council), Sept., 1945, p. 13.



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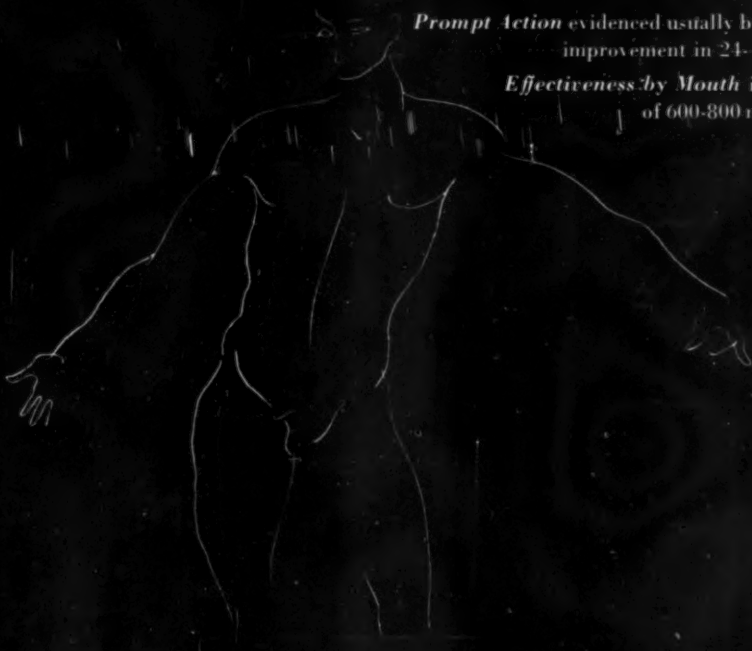
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1. Kusell, W. C., and Schaffartzick, R. W.: Paper read before the California Medical Association, Los Angeles, April 29, 1952.
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1. Waters, E. G., and Wager, H. P.: Amer. J. Obstet. & Gyn. 60:885, 1950.



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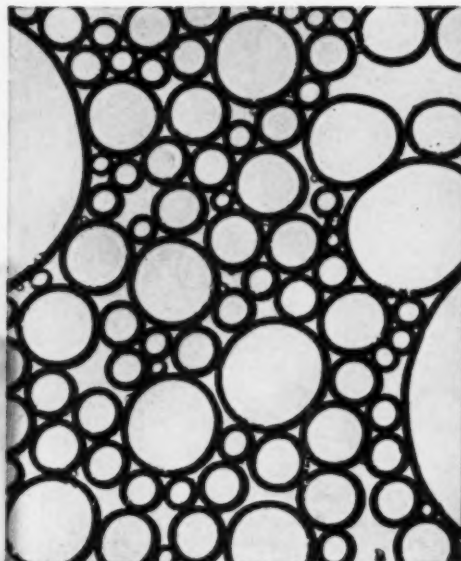
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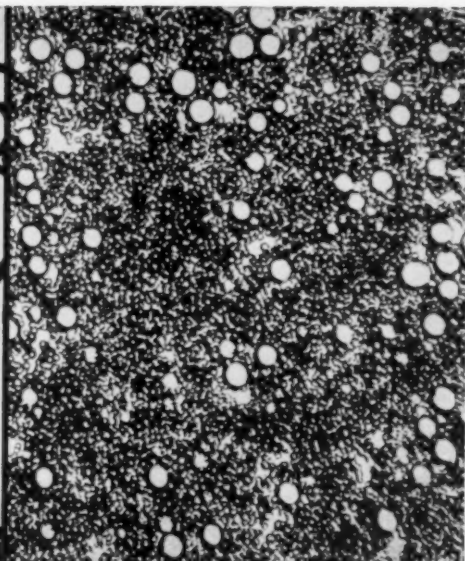
Packaging: MENAGEN WITH METHYLTESTOSTERONE: in bottles of 100 capsules. Each capsule contains MENAGEN equivalent to the estrogenic activity of 10,000 I. U. ketohydroxyestratriene, and 10 mg. methyltestosterone.



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DETROIT, MICHIGAN



1 Oil dispersion (x133). Large irregular globules fail to mix readily with fecal mass. Phenolphthalein is not evenly distributed to stimulate peristalsis. Action may be sporadic and evacuation incomplete.



2 The fine oil emulsion (x133) of Agoral. The small, uniform globules and the phenolphthalein mix readily with the bowel content, producing peristalsis by more uniform lubrication and stimulation.

Which Laxative is Better — COARSE DISPERSION OR FINE EMULSION?

Coarse dispersions are unstable, and erratic in their effects. Any physician can recognize the superiority of the fine Agoral emulsion (at right, above) compared with an ordinary oil-in-water dispersion (left).

Free-floating oil is distasteful and often regurgitated. Large oil globules tend to coalesce and form pools in the gut, which may seep past the sphincter as anal leakage.

Agreeable to Sensitive Stomach

The fine emulsion of Agoral is palatable and will not distress a sensitive stomach. It assures more uniform dosage and distribution of the active ingredients, more uniform clinical results.

Its thorough admixture with the

bowel content gives effective, uniform lubrication of the fecal mass as well as the canal. There is no loose oil to cause anal leakage.

Mixed like Homogenized Milk

Agoral is emulsified exclusively with refined white mineral oil, purified white phenolphthalein, agar-gel, tragacanth, acacia, egg-albumen and glycerin, by a special process similar to that used for homogenizing milk.

For over 30 years medical men have obtained results with Agoral with a uniformity and precision which are a constant source of satisfaction both to them and to their patients.

William R. Warner, Div. of Warner-Hudnut, Inc., New York 11, N. Y.

Prescribe **AGORAL** [®] **WARNER**

PLEASANT AND GENTLY EFFECTIVE WITHOUT DISTRESS OR LEAKAGE



NEO-IOPAX®

(Sodium Iodomethane, USP)

A safe urographic
contrast medium
remarkably free
from hazard for
the patient.

NEO-IOPAX

Pictures without penalties

NEO-IOPAX urograms and PRIODAX cholecystograms
give definitive information for diagnosing certain pathologic
conditions of the urinary and biliary tracts, respectively—without penalty.



PRIODAX

Schering CORPORATION
BLOOMFIELD, N. J.

in the treatment of osteoporosis...

estrogens and androgens go together like needles and thread to provide a dual approach for maximum efficiency. "Premarin" with Methyltestosterone combines estrogen steroids which, together, have a synergistic effect on bone and protein metabolism from either sex alone. The value of such therapy has been clearly defined by Hollenstein* and others.

Hollenstein, R. G., Jr., and Hollenstein, L. S., *Annals of the New York Academy of Sciences*, 1959, 100, 1024.

Ayerst

Ayerst, McKenna & Harrison Limited
New York, N. Y. • Montreal, Canada

"PREMARIN"

(17 β)

METHYLTESTOSTERONE

for combined estrogen-androgen therapy

for
convenience
simplicity
efficiency
in parenteral penicillin therapy...



THE BRIST-O-MATIC DISPOSABLE SYRINGE

TRADEMARK

containing

Flo-Cillin[®] Aqueous

Crystalline Procaine Penicillin G in aqueous suspension

The Brist-O-Matic Disposable Syringe containing free-flowing Flo-Cillin Aqueous provides a measured dose of procaine penicillin G, completely sterile, instantly ready for injection under all circumstances.

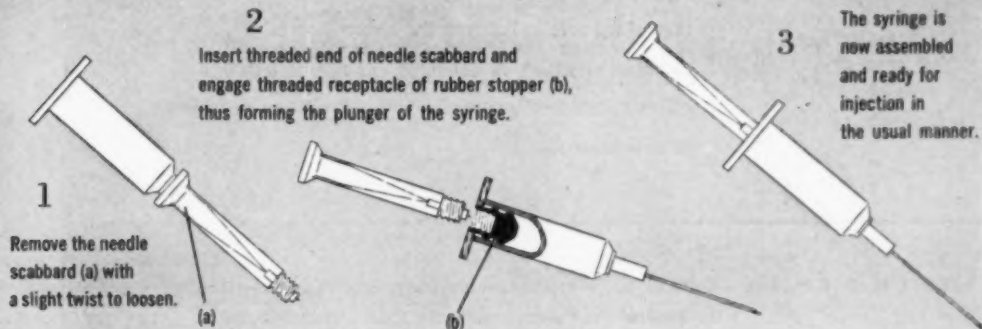
Constructed of polyethylene and completely self-contained, the syringe is contamination-proof and unbreakable. Because Flo-Cillin Aqueous requires no refrigeration, the Brist-O-Matic Syringe unit can always be kept handy for emergency use. Low cost assures its practicality for one-time use, which in turn eliminates any risk of hepatitis transfer.

The BRIST-O-MATIC disposable syringe containing Flo-Cillin Aqueous is supplied as a complete unit in single sterile packages, with a choice of two dosages:

600,000 u. Procaine Penicillin G in 1 cc.
1,000,000 u. Procaine Penicillin G in 1.7 cc.



TO USE, SIMPLY: ▼





"...and be sure to take your VITAMINS!"

Hypermotility induced by diarrheal diseases plays an important role in limiting the absorption of essential vitamins. A balanced vitamin preparation offers substantial protection against the development of avitaminoses.

MERCK & CO., INC., RAHWAY, N. J.—as a pioneer manufacturer of Vitamins—serves the Medical Profession through the Pharmaceutical Industry.

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New!
dramatic relief
from PAIN

Strascogesic

ANALGESIC • ANTI-DEPRESSANT • RELAXING

When the demand is for fast, effective and complete pain relief, Strascogesic is significantly superior. Its carefully balanced formula raises pain thresholds to new high levels, markedly improves patient outlook, reduces tension associated with pain. Of particular value in dysmenorrhea, rheumatic or low back pain, muscle and joint pain, neuralgia, neuritis, headaches, colds and grippe.

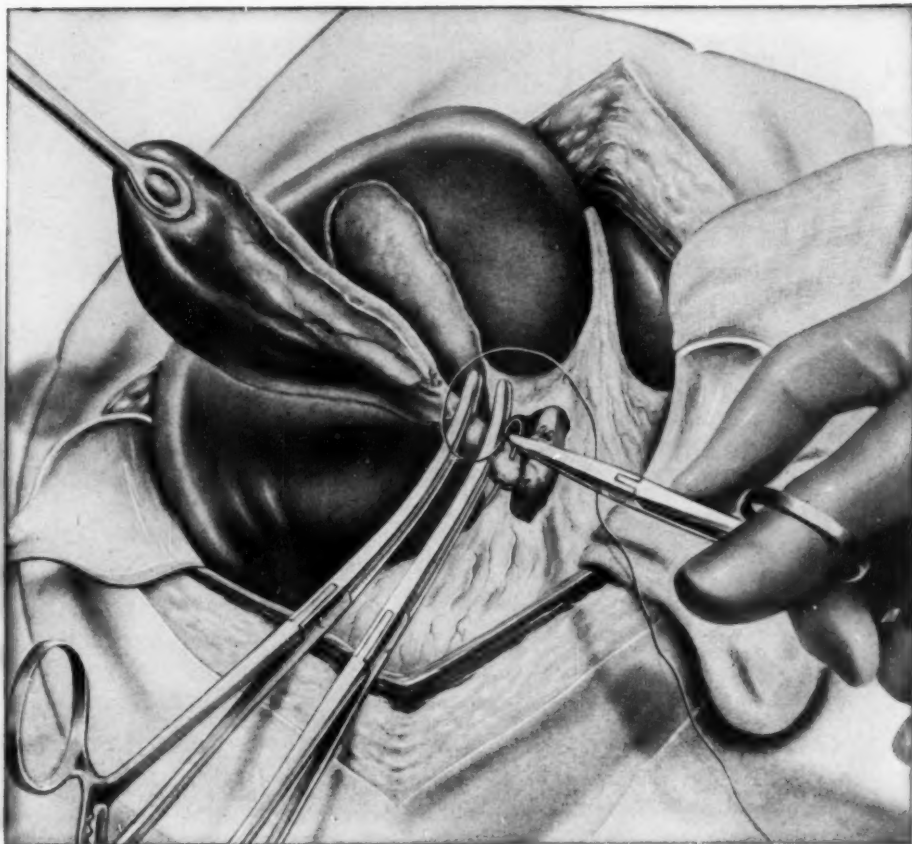
Each Strascogesic (non-narcotic) tablet contains:

| | |
|--|---------|
| Acetyl-p-aminophenol..... | 300 mg. |
| Salicylamide..... | 200 mg. |
| Raphetamine (racemic amphetamine phosphate, monobasic)..... | 2 mg. |
| Metropine® (methyl atropine nitrate)..... | 0.5 mg. |

Strascogesic is available on prescription only. Supply for initiating treatment in several cases furnished on request. Write Medical Service Department, R. J. Strassenburgh Co., Rochester 14, N. Y.

Strassenburgh
FOUNDED 1886

for this critical ligation **"timed-absorption"**



The success of a cholecystectomy depends on factors in the patient, in the surgical technic and in the suture material used. In a critical step, such as ligating the cystic duct, the skill of the surgeon must be supported by a dependable ligature, which will not digest prematurely.

"Timed-absorption" surgical gut assures a predictable digestion rate that can be measured.

By an exclusive improved process, D & G *"timed-absorption"* surgical gut is accurately tanned in *graded degrees* from the outer surface inward to achieve a more logical absorption curve. Maximum resistance to digestion is assured during the *critical first 4 days* when there is least fibrosis. As fibrosis develops and the need for artificial support lessens, the rate of absorption increases. The ligature on the cystic duct lasts until fibrosis is completed and finally absorbed.

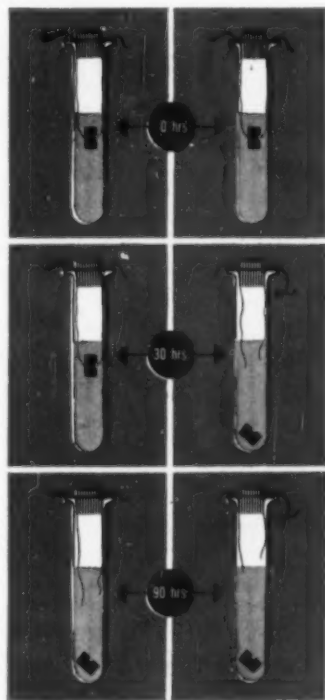
surgical gut sutures will not digest prematurely

90 hours vs. 30 hours

Comparison of D & G "timed-absorption" medium chromic surgical gut suture, size O, with non timed-absorption medium chromic surgical gut suture, size O. Weights are suspended from each in trypsin solution. Note that at the end of 30 hours "timed-absorption" surgical gut remains intact; the weight is still held suspended up to 90 hours. Contrast with non timed-absorption chromic surgical gut suture which has begun to digest and breaks under the slight tension created by the weight at 30 hours. In human tissue all chromic sutures are digested more slowly, but the ratio between the two types remains the same.

D & G surgical gut sutures have a special matte finish. They tie readily and do not slip at the knot. Pliability is exceptional and tensile strength, diameter for diameter, is guaranteed to be unexcelled by any other brand.

There is a D & G suture for every surgical purpose, available through responsible surgical supply dealers everywhere.



Davis & Geck
"timed-absorption"
sutures

non timed-absorption
chromic sutures

"timed-absorption" sutures

Davis & Geck, Inc.

27 Wall Street, New York 6, N.Y.



New York 6, N.Y.

Surgeons agree on D & G

MODERN MEDICINALS

These brief resumes of essential information on the newer medicinals, which are not yet listed in the various reference books, can be pasted on file cards and a record kept. This file can be kept by the physician for ready reference.

Abboject Disposable Syringe, Abbott Labs., N. Chicago, Ill. For repository penicillin therapy. **Dose:** As determined by physician, for intramuscular use only. **Sup:** Abboject with penicillin-G procaine (aqueous suspension) 600,000 u., with or without needle.

Apresoline Tablets (10 mg.), Ciba Pharmaceutical Products, Inc., Summit, N. J. Antihypertensive drug that increases renal blood flow. **Dose:** As determined by physician. **Sup:** Now available in 10 mg. tablets, in bottles of 100, 500 and 1,000 tablets.

Cardalin Tablets, Irwin, Neisler & Co., Decatur, Ill. Wherever the parenteral, rectal or oral administration of aminophylline or its modifications is indicated, particularly in cardiac and asthmatic conditions. **Dose:** As determined by physician. **Sup:** In bottles of 100, 500 and 1,000 tablets.

Cer-O-Cillin Tablets, The Upjohn Co., Kalamazoo, Mich. For oral penicillin therapy particularly in patients who are sensitive to penicillin G. In treatment of infections caused by penicillin-susceptible organisms. **Dose:** For pneumococcal, streptococcal and staphylococcal infections, initially 500,000 units followed by 100,000 units every 3 hours. In more severe infections parenteral penicillin O should be used. In acute gonorrhea, 100,000 units every 3 hours 6 times daily for 1 or 2 days, or 500,000 units every 6 hours for 3 doses is recommended. **Sup:** In bottles of 12 tablets.

Cillorets, Bristol Laboratories, Inc., Syracuse, N. Y. For the treatment of certain throat, mouth infections which are immune to at-

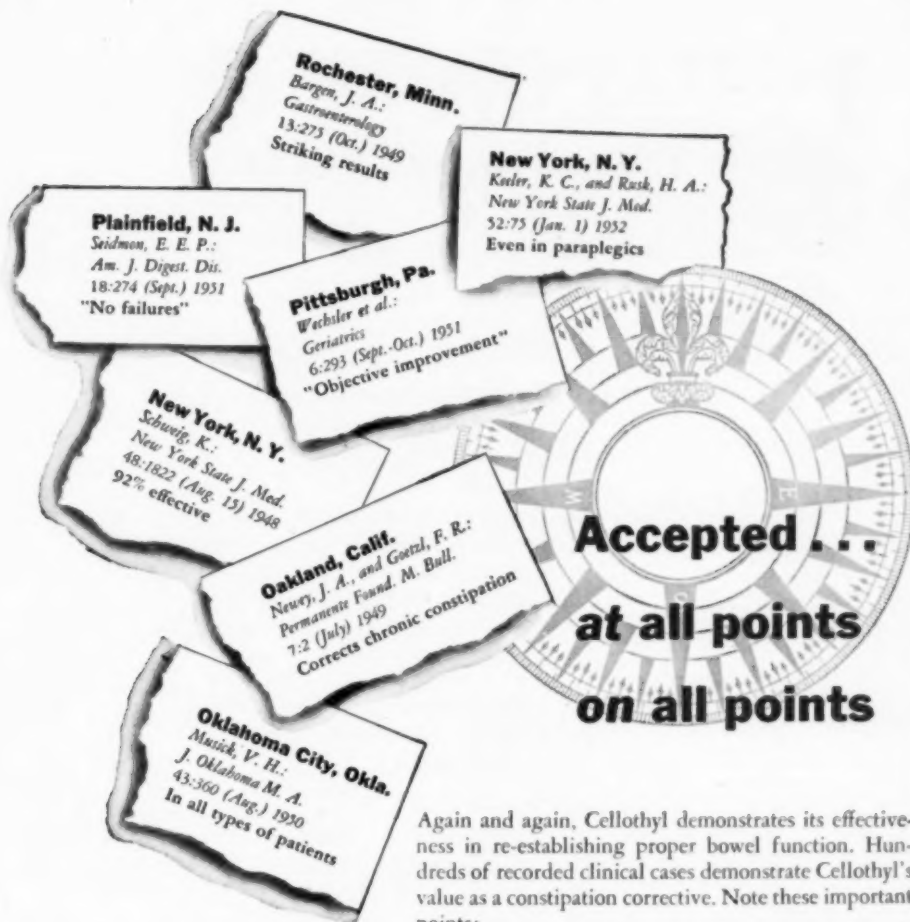
tack by either antibiotic (penicillin, bacitracin) alone. **Dose:** As determined by physician. **Sup:** Two packages of 10 troches each, in boxes.

Combiotic, (5 dose silicone-treated vials), Chas. Pfizer & Co., Brooklyn, N. Y. Penicillin and dihydrostreptomycin combination, in selected cases of bacterial endocarditis, surgical prophylaxis, urinary tract infections, upper respiratory infections, and in certain infectious diseases of mixed bacterial origin. **Dose:** As determined by physician. **Sup:** Combiotic PS 1/2 Gm Formula in single dose vials.

Combiotic Aqueous Suspension, Chas. Pfizer & Co., Brooklyn, N. Y. Penicillin and dihydrostreptomycin combination. **Dose:** As determined by physician. **Sup:** In vials, 5 dose, "drain-clear," 10 cc. and in the new "Steraject" single dose disposable cartridge for use with the new Steraject syringe.

Cortogen Acetate Ophthalmic Suspension (Sterile), Schering Corp., Bloomfield, N. J. Eyelid: Acute, chronic, and allergic blepharitis, spastic entropion due to local irritation; Conjunctiva: Acute, chronic, allergic and phlyctenular conjunctivitis; Cornea: Corneal ulcer, intestinal keratitis, herpes zoster ophthalmicus, phlyctenular keratoconjunctivitis, and neo-vascularization; Sclera: Scleritis, episcleritis; Iris: Acute, chronic and traumatic iritis, iridocyclitis. **Dose:** As determined by physician. **Sup:** 0.5% (5 mg. per cc.), dropper bottles of 5 cc., boxes of 1 and 6; and 2.5% (25 mg. per cc.), dropper bottles of 5 cc., boxes of 1.

—Concluded on page 44c



Again and again, Cellothyl demonstrates its effectiveness in re-establishing proper bowel function. Hundreds of recorded clinical cases demonstrate Cellothyl's value as a constipation corrective. Note these important points:

1. **Cellothyl provides bulk where needed.** Cellothyl provides proper bulk only in the colon, does not cause distention in the stomach.
2. **Cellothyl acts physiologically.** Like food, Cellothyl remains in liquid form throughout the digestive tract until it reaches the colon. Here, it gels into soft, moist bulk and induces normal peristalsis by gentle mechanical stimulation.
3. **Cellothyl's effect is prolonged.** Cellothyl corrects—not merely relieves—constipation. Usually, soft, formed stools appear within a few days, and a reduced dosage will maintain regularity.

Cellothyl®

the original methylcellulose "peristaltic"



CHILCOTT *Laboratories, Inc.*

MORRIS PLAINS, NEW JERSEY
FORMERLY THE MALTINE COMPANY

When Clinical Proof is Your Guide
DOHO RESEARCH PRODUCTS
are indicated...

Now !!!

The NEW O-TOS-MO-SAN

is a Specific in Suppurative Ear Infections —
both Acute and Chronic, also External Otitis
because it is . . .

BACTERICIDAL . . .

and

FUNGICIDAL . . .

(GRAM-POSITIVE — GRAM-NEGATIVE) — it KILLS
BACTERIA, including BACILLUS PROTEUS,
B. PYOCYANEUS, E. COLI, BETA HEMOLYTIC
STAPHYLOCOCCUS AUREUS

(Isolated from ear infections and found resistant
to antibiotics in laboratory tests)

it KILLS FUNGI — including ASPERGILLI,
TRICOPHYTON, MONILIA, and
MICROSPORUM

**NON-TOXIC • NON-IRRITATING
STABLE • CLEAR**

PROVED EFFECTIVE AGAINST ANTIBIOTIC RESISTANT STRAINS OF ORGANISMS

Substantiating Laboratory and Clinical data in press.

FORMULA:

A NEW, improved process, using
Doho glycerol base, results in a
chemical combination having
these valuable properties.

Urea 2.0 GRAMS
Sulfathiazole 1.6 GRAMS
Glycerol (DOHO) Base
16.4 GRAMS
(Highest obtainable spec. grav.)

Challenge !!!

**TRY NEW O-TOS-MO-SAN in your
most stubborn cases, the results will
prove convincing.**

DOHO CHEMICAL CORP., 100 Varick Street, New York 13, N. Y.

AURALGAN — After 40 years STILL
the auralgic and decongestant

RHINALGAN — safe nasal decongestant.
Acts locally NOT systemically.

RECTALGAN — Liquid . . . For symptomatic relief in

Fellows Chloral Hydrate

CAPSULES

NON-BARBITURATE
NON-CUMULATIVE
TASTELESS
ODORLESS



3³/₄ gr.

Daytime sedation —
without hangover

7¹/₂ gr.

Restful sleep — without hangover

Rx. — specify Fellows for the original, stable, hermetically sealed soft gelatin capsules Chloral Hydrate.

Available — 3³/₄ gr. (0.25 Gm.), bottles of 24's and 100's

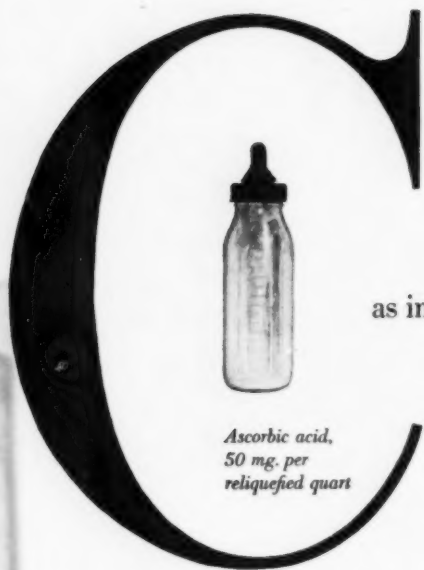
7¹/₂ gr. (0.5 Gm.), bottles of 50's

Samples and literature on request

pharmaceuticals since 1866

28 Christopher Street
New York 14, N. Y.

Fellows
MEDICAL MFG. CO., INC.
Pharmaceuticals



*constant
and
correct*

as in **SIMILAC**

*Ascorbic acid,
50 mg. per
relieved quart*

Similac provides, constantly and unvaryingly, 50 mg. of ascorbic acid per relieved quart—an amount closely approximating the content of mother's milk—and in excess of recommended allowances. Similac thus assures adequate and continuous (through each feeding) Vitamin C intake now established as an effective safeguard against scorbutic and some anemic states during infancy.¹ The importance of an adequate intake is further reflected in the finding that Vitamin C is essential for utilization of the amino acid tyrosine, functioning probably as coenzyme.²

*There is no closer equivalent to the milk
of healthy, well-nourished mothers than Similac*

providing: zero curd tension for easy digestion; fats chosen for maximum retention and high ratio of unsaturated and essential fatty acids; full balanced array of essential amino acids; folic acid and Vitamin B₁₂ (naturally occurring, in breast milk quantities); other vitamins in adequate amounts; minerals adjusted to favorable proportions.

Supplied: Similac Powder, tins of 1 lb.; Similac Liquid, tins of 13 fl. oz.

1. Tisdall, F. F., and Jolliffe, N., in *Clinical Nutrition*, New York, P. B. Hoeber, 1950, c. 23, p. 590. 2. Sealock, R. R., and Goodland, R. L.: *Science* 114: 645 (Dec. 14) 1951.

Copies of the Report of the Fourth M & R Pediatric Research Conference, on Calcium and Phosphorous Metabolism, are available. Address request to:

M & R Laboratories • Columbus 16, Ohio



NOW!

THE ARMOUR LABORATORIES OFFERS YOU

thyral

The Premier Thyroid Preparation Prepared by
ISOTHERMIC PROCESSING



An Outstanding Achievement in Glandular Product Control

Thyral, prepared by the new "isothermic process" (positive temperature control at every step) is derived only from bovine sources. "Isothermic processing" is the key to uniformity in this entirely new thyroid preparation. Thyral represents all of the known hormones of the whole thyroid gland, biologically tested and chemically assayed for uniformity of response. By the exclusive use of beef thyroid glands, "quick frozen" at the animal and "isothermic processing", higher purity and greater uniformity are assured.

advantages of **thyral**

- Complete efficacy of the whole gland
- Greater uniformity of finished product
- Elimination of unwanted organic matter
- Double standardization—chemically assayed and biologically tested
- Conforms with Thyroid U.S.P.—may be prescribed in the same dose
- Tasteless
- New, small-sized whole thyroid tablet offers greater patient convenience



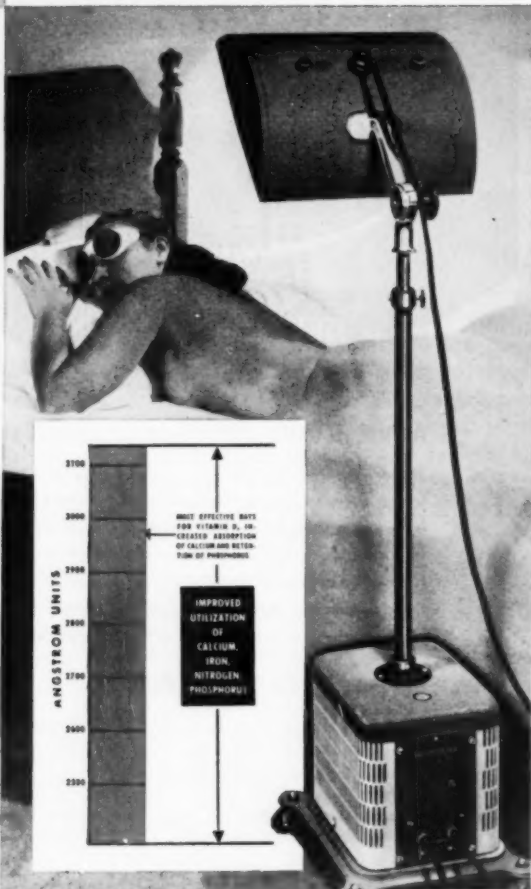
THE ARMOUR LABORATORIES, INC. MADE IN U.S.A.
world-wide dependability
ESTABLISHED THERAPEUTICS THROUGH BIOCHEMISTRY

supplemental ultraviolet therapy in the patient's home...a valuable adjunct in physical rehabilitation

The value of ultraviolet ancillary treatment in physical rehabilitation is generally recognized. For making up dietary deficiencies, increasing blood hemoglobin levels, improving the absorption of calcium, iron, nitrogen and phosphorus, and for many other bactericidal or therapeutic uses, proper exposure of the patient to ultraviolet has proved highly effective.

Busy physicians have found they can ease their schedules by prescribing home ultraviolet treatments. And the Hanovia Prescription Model Ultraviolet Quartz Lamp has been developed especially to deliver the most effective wavelengths in the stimulating portion of the ultraviolet spectrum, as shown in the chart.

For supplementary home treatments your patients can purchase Hanovia Prescription Model Ultraviolet Lamps on convenient payment terms. Write for literature and the name of our nearest representative or dealer. Hanovia Chemical & Mfg. Co., Dept. MT12 100 Chestnut St., Newark 5, N. J.



HANOVIA

WORLD'S LARGEST PRODUCERS OF ULTRAVIOLET EQUIPMENT FOR

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THE MEDICAL PROFESSION

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THE HOME



for your low-sodium-diet patient

DIASAL

to help him stay on his diet

DIASAL is an outstanding salt substitute. In addition to its fine salt taste, it contains glutamic acid to bring out the natural flavor of each food — and it can be used in cooking. At the same time its high potassium content protects your patient against potassium depletion, a hazard of low-sodium diets.¹

DIASAL LOOKS LIKE SALT

DIASAL TASTES LIKE SALT

DIASAL POURS LIKE SALT

DIASAL IS SAFE.....

"Of all the products [salt substitutes] studied, DIASAL most closely approximates sodium chloride in... pour-quality, appearance and stability."²

Contains No Lithium • No Sodium • No Ammonium

Constituents: potassium chloride, glutamic acid and inert excipients

DIASAL may be freely prescribed in congestive heart failure, hypertension, arteriosclerosis and toxemias of pregnancy. It is contraindicated only in severe renal disorders and oliguria.

DIASAL—in 2-oz. shakers and 8-oz. bottles at all pharmacies.

Samples, literature and pads of low-sodium diets available on request.

1. Fremont, R. E.; Rimmerman, A. B., and Shafjel, H. E. *Postgrad. Med.* 10:216, 1951.

2. Rimmerman, A. B., et al: *Am. Pract. & Digest Treat.* 2:168, 1951.

FOUGERA

E. FOUGERA & COMPANY, INC.
75 Varick Street, New York 13, New York

why take any undue risk
in urinary antisepsis?

Mandelamine[®]

**persistently
effective**

Cumulative clinical reports indicate that Mandelamine is the preferred therapy in many prevalent urinary tract infections. It manifests a wide range of antibacterial potency, being effective against both gram-negative and gram-positive organisms. Whereas microorganisms may develop resistance to antibiotics and sulfonamides, resistance to Mandelamine has never been reported.

**consistently
well-tolerated**

Extensive clinical findings attest to the safety of Mandelamine. There are no reports in the literature of blood dyscrasias, monilial overgrowth, or crystalluria following Mandelamine therapy. Skin rashes and gastrointestinal upsets are rare, and no irritation of the urinary tract results when Mandelamine is administered over long periods of time.

Specify MANDELAMINE in • pyelitis • cystitis
• pyelonephritis • prostatitis • infections commonly
associated with urinary calculi or neurogenic bladder
• pre- and postoperative prophylaxis in urologic surgery.
Dosage: For maximum effect, adults should take
3 or 4 tablets t.i.d., children in proportion.

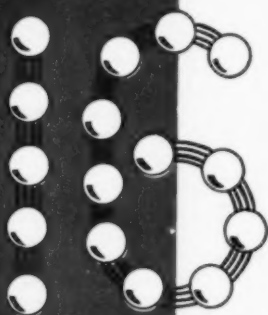
® Mandelamine is the registered trademark of Nepera Chemical Co., Inc.,
for its brand of methenamine mandelate.

NEPERA CHEMICAL CO., INC.

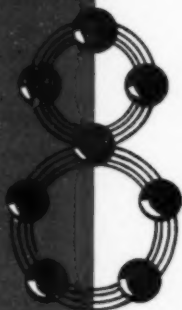
Pharmaceutical Manufacturers

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or



?

Which

WOULD YOUR PATIENT PREFER?

Many patients who take oral diuretics rebel at the number of tablets which they are forced to take daily (the average oral dose of ammonium chloride is 4 to 8 Gm. daily). In order to facilitate taking of sufficient ammonium chloride for effective diuresis, we have enteric coated a 1 Gm. tablet of this substance.



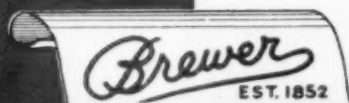
AMCHLOR

IMPROVED AMMONIUM CHLORIDE

Recent clinical papers have shown that sufficient dosage of ammonium chloride, besides being an effective diuretic, is of value in Meniere's disease, premenstrual tension, and aids to eliminate nausea occurring in stilbestrol therapy. The next time you prescribe an oral diuretic, prescribe AMCHLOR. . . .

**ONE GRAM TABLET—
ENTERIC COATED**

For samples just send your Rx blank marked 11AM12



BREWER & COMPANY, INC. WORCESTER 8, MASSACHUSETTS U.S.A.

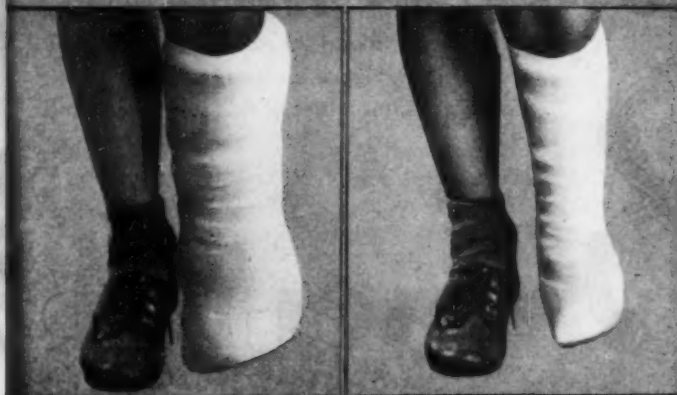
Melmac®

Orthopedic Composition

for lighter, thinner, stronger casts

Davis & Geck's Melmac Orthopedic Composition is a melamine resin,† a new powder with catalyst which doctors add to the water in which they wet plaster bandages. With Melmac Orthopedic Composition, doctors need only half the usual number of plaster of Paris bandages. Melmac has been proven by extensive clinical trials.¹⁻³

Greater comfort for patients



Cast A—ordinary plaster of Paris

Cast B, plaster fortified with Melmac, is half thickness of cast A and weighs less

6 great advantages of casts made with Melmac Orthopedic Composition

1. Four times the early strength and over twice the dry strength of ordinary plaster of Paris casts.
2. Lighter, thinner and stronger casts provide added comfort and support.
3. Water and urine resistant. Does not disintegrate even after several days soaking.
4. Permits better x-ray penetration due to thinness of cast.
5. Economical—50% fewer bandages or less needed; saves the doctor time.
6. Conveniently packaged to permit using as much or as little as is needed for a given case, avoiding waste.

Supplied: In cartons of 3.45 lb. containing six cans of 9.74 oz. (276 Gm.) each, available through surgical supply dealers handling D & G products.

Davis & Geck, Inc.

A DIV OF AMERICAN COMPASS COMPANY



57 Willoughby Street,
Brooklyn 1, N.Y.

Sutures and other surgical specialties

TRADEMARK
PROPERTY OF AMERICAN COMPASS COMPANY

Use of Melmac requires no new technique

To use bandages and splints wetted with Melmac solution, no new technique for applying casts need be learned. Plaster rolls or splints are soaked in the Melmac solution in the usual manner, the excess solution is pressed out, and the cast applied with the same technique as with ordinary plaster bandages and splints.

Note:

Cobey,³ reports not one person allergic to Melmac in applying 1000 casts.

references:

1. A. W. Spittler, Col., (M.C.), U.S.A., J. J. Brennan, Lt. Col., (M.C.), U.S.A., J. W. Payne, Capt., U.S.A.F. (M.C.), American Academy of Orthopedic Surgeons, Jan. 26-31, 1952, Chicago, Illinois.
2. M. C. Cobey, M.D., F.A.C.S., Professor of Orthopedic Surgery, Georgetown University and Senior Attending Orthopedic Surgeon, Children's Hospital, Washington, D.C., The American Surgeon, Vol. XVIII, No. 4, April, 1952, pp. 413, 415.
3. M. C. Cobey, M.D., F.A.C.S., Washington, D.C., private communication.



Davis & Geck manufactures a complete line of surgical sutures. Diameter for diameter, the tensile strength of D&G Surgical Gut is unequalled by any other brand.

NEW

prompt... prolonged...

prescribed relief of pain

APAMIDE

BRAND • TRADEMARK

tablets

(N-acetyl-p-aminophenol, 0.3 Gm.)

analgesic-antipyretic

rapid, direct analgesia

Apamide quickly relieves pain and reduces fever through direct analgesic-antipyretic action. It avoids the delay inherent in compounds that require metabolic transformation to produce analgesia.

prolonged relief of pain

Apamide goes to work fast. It raises the pain threshold substantially within 30 minutes, reaches peak effect in about 2½ hours and continues to be effective for approximately 4 hours.

well-tolerated analgesic

Apamide is a pure, active agent that does not produce extraneous, possibly toxic metabolites. High dosages over long periods have not been shown to cause toxic reactions or gastric upsets. It is extremely valuable in patients who cannot tolerate salicylates.

Rx only

Available only on your prescription, *Apamide* permits precise control of dosage and duration of treatment by you. Prescribe it for relief of pain and reduction of fever in respiratory infections, functional headache, muscular or joint pain and dysmenorrhea. Average adult dose, 1 tablet every four hours.

**for a sedative-analgesic
prescribe**

APROMAL

BRAND • TRADEMARK

tablets

(N-acetyl-p-aminophenol, 0.15 Gm. and acetylcarbromal, 0.15 Gm.)

non-narcotic, non-barbiturate

Apromal is especially valuable in those cases where pain coexists with tension, anxiety, restlessness, excitement, nervousness and irritability. *Apromal* contains *Apamide* and the widely used, gentle daytime sedative, acetylcarbromal. Enhancement of both analgesia and sedation is secured by this combination. Average adult dose, 1 tablet every 4 hours.



AMES

COMPANY, INC., ELKHART, INDIANA



Ames Company of Canada, Ltd., Toronto

43352

MODERN MEDICINALS

—Concluded from page 32a

Covisten Tablets, Organon, Inc., Orange, N. J. A steroid-vitamin-mineral supplement, non-virilizing, for use by young or old. **Dose:** Adult, 1-2 tablets, once or twice daily; Children, $\frac{1}{2}$ adult dose. **Sup:** In bottles of 100 and 1,000 tablets.

Crephex Syrup, Schenley Laboratories, Inc., Lawrenceburg, Ind. For the control of cough due to cold, bronchitis and other respiratory tract disorders, and in the management of bronchial asthma, hay fever and perennial rhinitis. **Dose:** As determined by physician. **Sup:** In pt. and gal. bottles.

Dinacrin Tablets, Winthrop-Stearns, Inc., New York 18, N. Y. Antituberculosis chemotherapy, brand of isonicotinic acid hydrazide. **Dose:** As determined by physician. **Sup:** In bottles of 100 and 1,000 tablets.

Distrycillin A. S., E. R. Squibb & Sons, New York 22, N. Y. Penicillin-streptomycin combination indicated in cases of contaminated wounds, peritonitis, mixed infections of the respiratory or urinary tracts, selected cases of septicemia and subacute bacterial endocarditis, as a surgical prophylaxis, and in other conditions where potent, broad antibacterial activity is desired. **Dose:** As determined by physician. **Sup:** In single-dose (2 cc.) and five-dose (10 cc.) vials.

Drilozets, Smith, Kline & French Laboratories, Philadelphia, Pa. For the relief of sore throats associated with coughs, colds and other respiratory infections or trauma. **Dose:** As determined by physician. **Sup:** In bottles of 48 lozenges.

Felo'ral Capsules, Fellows Med. Mfg. Co., New York, N. Y. Chloral hydrate and naturally occurring belladonna alkaloids. In the management of restlessness and insomnia, produced by spastic conditions of smooth muscles, mainly of the gastro-intestinal tract, or where such spasms occur as psychosomatic responses to pre-existing nervous tension or anxiety. **Dose:** Adults: One, 2 or 3 capsules with water, as indicated; Infants: Rectally, 1 or more capsules as required. **Sup:** In packages of 100 capsules.

Lactinex Tablets, Hynson, Westcott & Dunning, Inc., Baltimore 2, Md. For gastrointestinal disturbances, particularly diarrhea, including those resulting from antibiotic

therapy. **Dose:** Two to 4 tablets taken 3 to 4 times daily with $\frac{1}{2}$ glass of milk. **Sup:** In bottles.

Mephyton, Emulsion of, Merck & Co., Inc., Rahway, N. J. Brand of injectable Vitamin K-1, for stopping hemorrhages induced by derivatives of coumarin and where actual or potential bleeding is threatened from certain other causes, including vitamin K deficiency. **Dose:** As determined by physician. **Sup:** In 1 cc. ampuls, in boxes of 6.

Mucotin Liquid, The Harrower Lab., Inc., Jersey City 4, N. J. In peptic ulcer therapy, in hyperacidity, gastritis, and in antibiotic therapy for relief of nausea. **Dose:** As determined by physician. **Sup:** In bottles of 6 and 12 fl. oz., also in tablet form, bottles of 50 and 100 tablets.

Myadec Capsules, Perke, Davis & Co., Detroit, Mich. Vitamin-mineral combination that helps prevent or correct nutritive failure. **Dose:** As determined by physician. **Sup:** In bottles of 100 and 1,000 capsules.

Natalins, Mead, Johnson & Co., Evansville 12, Ind. Prenatal nutrient capsules. **Dose:** Three capsules daily. **Sup:** In bottles of 100 capsules.

Seconesin, Crookes Laboratories, Inc., Mineola, N. Y. Relaxant-sedative containing mephensin and secobarbital. **Dose:** Usual dose is 1 tablet every 4 hours. **Sup:** In bottles of 50, 100 and 500 tablets.

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1. Parsonnet, A. E., et al.: J. M. Soc. New Jersey 47: 504, 1950.

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**Smith, Richard T: Treatment of Neuritis with Protamide. New York Medicine (Aug. 20) 1952.*

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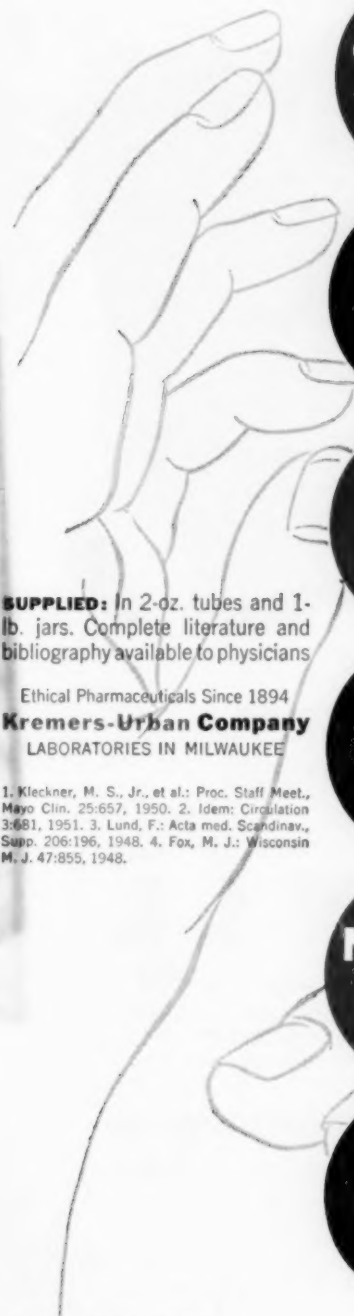
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1. Kleckner, M. S., Jr., et al.: Proc. Staff Meet., Mayo Clin., 25:657, 1950. 2. Idem: Circulation 3:681, 1951. 3. Lund, F.: Acta med. Scandinav., Supp. 206:196, 1948. 4. Fox, M. J.: Wisconsin M. J. 47:855, 1948.

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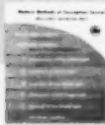
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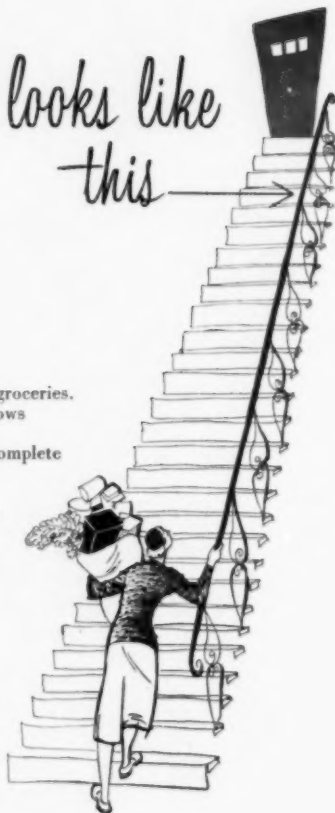
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Review of Bundle Branch Block

RICHARD P. JOHNSON, M.D.
Colonel, Medical Corps
United States Army

A patient with serious heart disease may have a bundle branch block (BBB), but that does not imply that all patients with BBB have serious heart disease. Whether or not the patient has serious heart disease will not be known solely by this finding, but must be determined by a complete study of the patient, searching for evidence of an enlarged heart, coronary or myocardial insufficiency, a valvular lesion, gallop rhythm, severe hypertension, etc. The poor prognosis ordinarily associated with this electrocardiographic (ecg) finding results from the fact that usually only those patients with symptoms of heart disease, or those who are suspected of having heart disease, have ecgs taken. That BBB may be present without any other evidence of heart disease is now generally accepted. It is sometimes necessary to follow a patient for an extended period of time before a conclusion can be reached as to the significance of this ecg finding.

The duration and configuration of the QRS complex of the ecg is determined by the time taken and the pathways followed by the excitation wave as it passes through the muscle of the two ventricles. If one of the bundles of His is blocked or destroyed the ventricular muscle on the involved side will receive the excitation wave by a delayed or abnormal pathway, and the QRS complex would naturally be of a longer duration and of an abnormal configuration.

Duration and Configuration of the QRS Complex

How wide must the QRS complex in the standard limb leads measure before considering it abnormal? Sir Thomas Lewis¹ set the upper limit of normal at 0.10 second and modern electrocardiographers in England and some in this country^{2,3} still accept this figure. However, occasionally normal vigorous young men may have a QRS that measures 0.12 second duration in the standard limb leads, these QRS complexes having a full complement of waves including Q, R, and S (Figure 1). If a delay in conduction is in a portion of the ventricular muscle normally excited at the beginning of the QRS, the total duration of this complex may not be prolonged and the evidence of the delay will be found only in the abnormal QRS configuration. Therefore, the ecg diagnosis of BBB is not based wholly on the QRS duration. Furthermore, a patient may have a QRS duration of 0.09 second or even 0.08 second in the standard leads and have all the evidence needed in the chest leads to make the diagnosis of incomplete right BBB.

Since the diagnosis of BBB is strictly electrocardiographic, the determination of the greatest QRS width in the standard limb leads is an important measurement.

*From the Cardiac Clinic, Brooke Army Hospital, San Antonio, Texas.

The distinction between complete and incomplete BBB is made on this measurement. The QRS duration is 0.12 second or greater in complete BBB and is less than 0.12 second in the incomplete type of block. But as mentioned above, even this long held standard is not invariable. Wilson⁴ has shown that complete right BBB can be present with a QRS duration as short as 0.10 second in the standard limb leads.

The Chest Leads The ecg diagnosis of BBB, and especially the differentiation of the BBB as right or left, should be made by the chest leads. This brings up the question of how many and which chest leads should be taken. The answer includes the following: first, that with few exceptions⁵ most electrocardiographers prefer the V leads to CF, CR, or CL leads; second, that a single chest lead is almost worse than none; third, that we should take enough chest leads to demonstrate a satisfactory pattern of both the right ventricle and the left ventricle. Ordinarily three chest leads are sufficient—that is, lead V1 or 2 to show the right ventricle, lead V5 or 6 to show the left ventricle, and either lead V3 or 4 to show the transition zone. Our routine at Brooke Army Hospital includes seven chest leads, V4R and V1 to 6. (Lead V4R is taken at the mid-clavicular line in the 5th interspace, but on the right side). Occasionally, we find it necessary to take additional leads, farther to the left or right or up one or more interspaces.

When a chest lead is taken over the right side of the precordium in cases of right BBB, we obtain a double R wave; the second or extra R wave is called R prime (R') and it is due to the late activation of the right ventricle. One can carry this interpretation to an extreme by designating ecgs showing small R and R prime waves with a deep S in between (rSr') as right bundle branch block. This finding is so common in normal young individuals that the diagnosis of right BBB

would lose any significance. The typical right BBB will show a small R wave followed by a small or moderate S wave and then, and most characteristic, an R prime wave that is prominent both in height and width (rSR'). The interpretation of the tracings in between these extremes is difficult. According to Wilson⁶ we must demonstrate a definite secondary R wave in at least the VI and VE leads before considering right BBB. (VE is taken with the chest electrode over the ensiform cartilage). In instances showing an inconclusive R prime wave in V4R, VI or 2, we frequently take leads one, two, or three interspaces above VI and 2 in order to demonstrate a more abnormal complex on which to base the diagnosis of right BBB. In this clinic we describe this finding in the ecg report and keep a record of such borderline cases in our diagnostic file as "questionable right BBB" but do not use the term BBB in the interpretation.

When a chest lead is taken over the left precordium in instances of left BBB, we obtain a monophasic broad-topped, bifid, notched, or double R wave. The second zenith is due to the late activation of the left ventricle. The QRS complex is, therefore, roughly "M" shaped when obtained over a ventricle that is activated later than normal (Figure 2). On the opposite side of the chest in both right and left BBB, there is obtained a wide, often deformed, S wave. This wave is also due to the late activation of the ventricle on the involved side, and the QRS complex resembles the letter "W".

In incomplete left BBB we frequently do not obtain the typical "M" configuration in the left ventricular QRS complex. It may only be slightly widened and slurred. This makes the diagnosis of incomplete left BBB, and especially its differentiation from left ventricular hypertrophy, difficult. Theoretically, the presence of a Q wave in the left ventricular complex excludes the diagnosis of left BBB,⁷ except when the Q wave is due

to myocardial (septal) infarction. However, this abnormal Q wave would be deformed, wide or deep, while a normal Q wave is relatively tiny, smooth, thin, and narrow. That this normal Q wave does occur in the presence of left BBB, and without septal infarction being present, has been well demonstrated.⁸ Sodi⁹ believes that slurring of the ascending limb of the R wave is diagnostic of incomplete left BBB.

Ventricular Hypertrophy Hypertrophy of a ventricle can widen the QRS complex. The effect of heart size on the QRS complex can easily be seen in normal mammals. The small heart of the mouse shows a QRS complex about 0.01 second in duration, the human infant 0.05 second, the human adult 0.10 second, while the huge heart of the elephant may have a QRS duration of 0.18 second. It is reasonable that marked enlargement of the heart, with little or no myocardial disease otherwise, can account for an increased QRS duration. Rasmussen and Moe,¹⁰ after studying 100 cases of left BBB clinically, electrocardiographically and finally at autopsy, concluded that the left BBB pattern of the ecg was five times more often due to enlargement of the left heart than to a local lesion of the left branch of the bundle. They considered dilatation of the left ventricle more important than hypertrophy in this regard.

Functional Bundle Branch Block Autopsy studies of the hearts of patients showing BBB have often shown a pathologic lesion in the area of the bundle branch believed to be involved.¹¹ Other studies¹² have failed to demonstrate a local lesion. Therefore the concept of "functional fatigue"¹³ was developed to explain the presence of the ecg pattern of BBB in the absence of an anatomic lesion. One may visualize the excitation impulse as a train which, arriving at the atrioventricular node, stops and there the impulse is loaded onto two trains—one for each of the two main branches. Then one of these trains

may start later or run slower than the other.

The Two Principal Mechanisms for Bundle Branch Block

The ecg pattern that we recognize as BBB may be the result of one of two principal mechanisms. The first type is due to a physiologic or anatomic lesion of a bundle branch and may be called the central or septal variety since the bundle branches are located in the interventricular septum. The other type may be called the peripheral variety—here the delayed conduction is in the free or lateral wall of the ventricle on the involved side. This latter type may be due to hypertrophy (diffuse or localized) of the wall of the ventricle. An example of localized hypertrophy would include the crista supraventricularis.¹⁴ It is believed that this area of the right ventricle, a remnant of the conus, is activated late in the QRS cycle and may explain the frequency of the rSr' pattern seen so often in healthy young individuals with vertical type hearts. Furthermore, a focal lesion in the free lateral wall of the ventricle may be the cause of delayed activation, for example, an acute or healed myocardial infarct. In patients with acute myocardial infarction the development of the BBB ecg pattern may be due to septal infarction involving a bundle branch or, and this is perhaps more common, it may be due to delayed conduction in the injured subendocardial area of the free lateral wall of the ventricle. This latter mechanism has been called "peri-infarction block"¹⁵ or "arborization block." A focal lesion in the ventricular lateral wall may result in a widening of the QRS complex to be noted in only a single chest lead; this was named focal intraventricular block by Katz.¹⁶ A final example of the widened QRS complex not due to actual BBB is potassium intoxication.¹⁷

Intraventricular Conduction Disturbance Since there are several mechanisms that may widen the QRS complex in addition to BBB, the term intra-

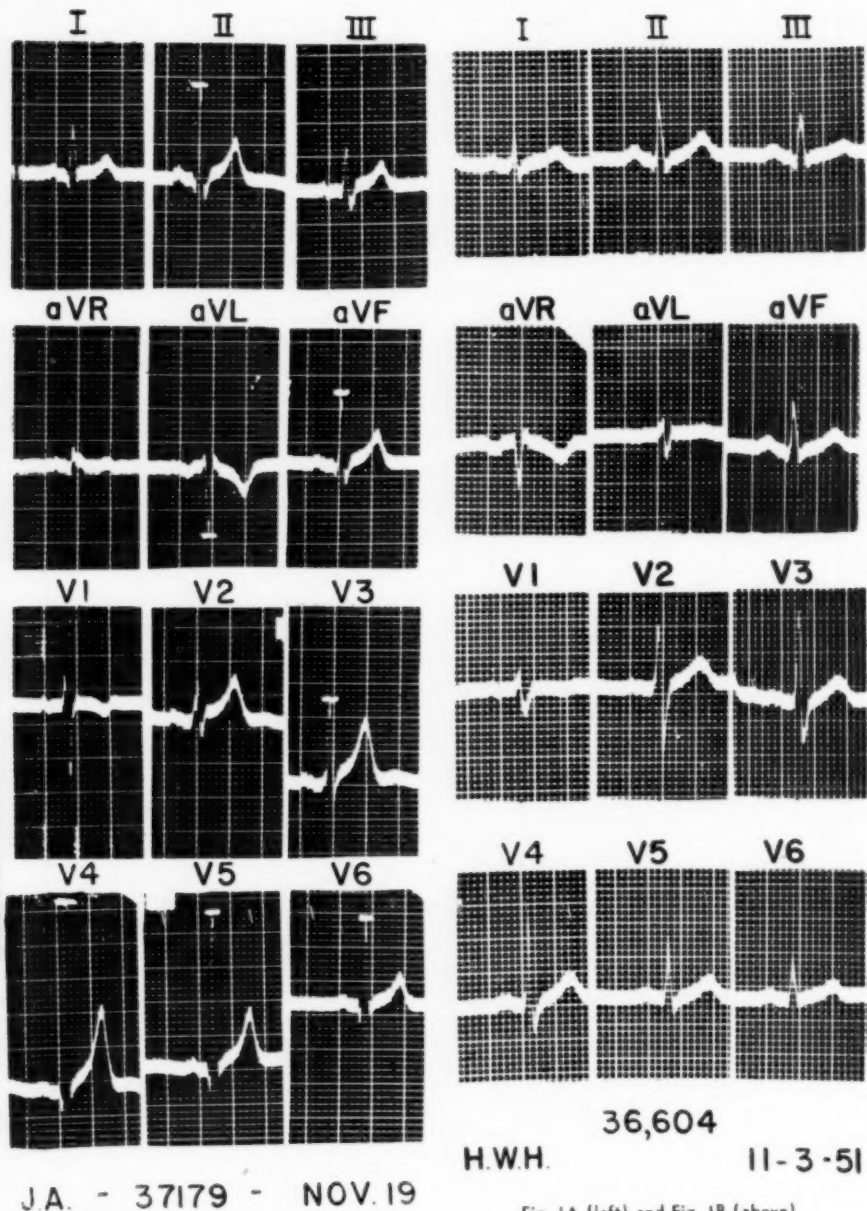


Fig. 1A (left) and Fig. 1B (above)

Two normal electrocardiograms with the QRS complex duration in both measuring 0.12 second in leads II, III, and aVF. A is from a 21-year-old male, B is from a 40-year-old male. Neither patient has any clinical or radiological evidence of cardiovascular disease.

ventricular conduction disturbance was introduced by Katz¹⁶ to include all varieties of delayed ventricular conduction. In support of this term is the opinion of the Glomsets¹⁸ that the bundle branches do not exist as anatomic structures in the human heart. Further confusion is introduced by the Robbs¹⁹ who state that the free (non-septal) walls of the ventricles are not necessary in order to record the QRST complex in the ecg.

Therefore, we must remember that although theoretically the QRS complex should be both increased in duration and abnormal in configuration in BBB, it may be within normal limits in duration, and it may be prolonged in conditions other than BBB. The contour of the QRS complex may also be abnormal without BBB being present.

Clinical Aspects Early studies had shown that left BBB was more common than the right variety. However, since chest leads have become routine the reverse has been found, and right BBB now exceeds left BBB in incidence.²⁰ Early studies also noted the peak age incidence of BBB to be between 50 and 80 years, but with the increased recognition of incomplete right BBB this, too, has been changed. The incidence of right BBB covers a wider range, say from 20 to 80 years, while left BBB still is most common between 50 to 80 years of age.

There are some differences in the etiology of the two types of BBB. Left BBB²¹ is most commonly found in patients with coronary artery disease and/or hypertensive cardiovascular disease (77%), and only a minority of the cases have rheumatic or syphilitic heart disease, or congenital cardiac malformations. In cases of right BBB²² though coronary artery disease and/or hypertensive cardiovascular disease are still the commonest etiologic factors, there are relatively more with rheumatic heart disease, especially mitral and/or tricuspid valve involvement, or congenital cardiac malformation, or most

particularly of an undetermined etiology. In 35 per cent of those with right BBB no other evidence of heart disease was found in comparison to only 14 per cent of those with left BBB.

It is because of the frequency of incomplete right BBB in young healthy individuals, in whom no other evidence of heart disease can be found, that the older idea of the serious prognosis of right BBB has changed. In a series reported recently^{21,22} the average survival period of 281 patients with right BBB was 3.9 years, but this was increased to 5.7 years when the 115 who died within the first year after the ecg diagnosis was made were eliminated. In the group of 166 patients who survived the first year and lived an average of 5.7 years there are 81 still alive, including 24 patients followed for 10 or more years.

In 555 patients with left BBB the survival time was 3.3 years and the 356 subjects who survived the first year after this ecg diagnosis have lived an average of 4.9 years with 151 still alive, including 41 patients followed for over 10 years. One patient is still alive after 18 years and another died 24 years after this diagnosis was first made.

It must be remembered that this group of over 800 patients had known heart disease or had shown symptoms or signs suggesting heart disease, and it was for these reasons that an ecg had been taken. If a group of apparently normal persons were to have ecgs taken we would find several with BBB and, in some, obvious heart disease might be found on further examination. However, in many we would be unable to find other evidence of organic heart disease. In this latter group survival periods would naturally be longer than those cited above.

Given a patient with a BBB in whom we can find no other evidence of heart disease and no hypertension, we can usually reassure him and tell him that his outlook should not be changed because of

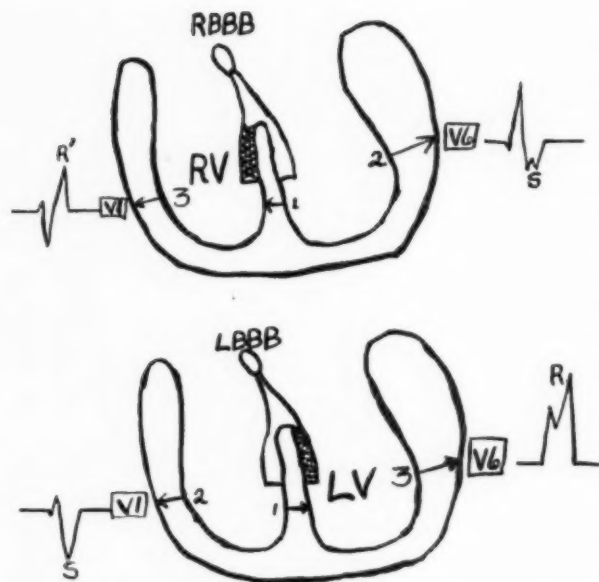


Fig. 2. Diagrammatic representation of QRS complex to be found on the right (V1) and on the left (V6) sides of the precordium in right bundle branch block (RBBB) and in left bundle branch block (LBBB). The cross hatching of one arm of the A-V bundle represents the theoretical area of the block. RV=right ventricle, LV=left ventricle. The figures 1, 2, and 3, accompanying the arrows, refer to sequence of activation of the septum and of the right and left ventricular walls.

this BBB. We should remember that we may be witnessing the first sign of progressive coronary artery disease. However, we still reassure that patient and ask him to make no change in his usual habits if they seem reasonable, urging him to return periodically for further observation or as soon as any unusual signs or symptoms may develop. Because of the frequency of asymptomatic coronary artery disease we must follow these patients for a sufficient length of time before reaching a final conclusion. For example, I followed a middle-aged man for seven years after a left BBB was discovered in his ecg and in whom no other evidence of disease could be found during this interval. He remained active and well for the seven years

until he developed angina pectoris of effort. Despite being placed at bed rest and and given anticoagulant therapy he died within two weeks of the onset. Autopsy disclosed far advanced coronary artery disease, no infarction or fresh thrombus, and his heart was normal in size and weight.

The physician, in visualizing the mechanism of the BBB in his otherwise healthy patient, is bound to believe that at least a small coronary artery leading to the involved bundle of His has become inadequate due most probably to atherosclerosis and/or thrombosis. Since this artery may be tiny it is not essential to the nourishment of the large

muscular mass of the ventricles. It is when a narrowing the lumen of this tiny artery reflects similar changes in the larger coronary arteries that we have need of more concern for our patient. In such an example we ordinarily expect to have clinical evidence of coronary insufficiency (such as angina pectoris) or myocardial insufficiency (such as enlargement of the heart). In the patient who also has hypertension there is a need for increased coronary flow because of the increased work of the heart and also possible hypertrophy of the myocardium. In these patients clinical

The editor of the *Texas State Journal of Medicine* granted permission to reprint Figure 2 from "The Significance of Bundle Branch Block" by R. P. Johnson, Colonel, MC, and others, appearing in the September 1951, issue of that journal.

evidence of coronary insufficiency will develop with less coronary artery disease than in the patient with a normal blood pressure level. Assuming coronary insufficiency to be the usual mechanism of the production of BBB, we can still explain the higher incidence of right as compared to left BBB. The interventricular septum is normally depolarized from left to right, and therefore one might say that a slight physiologic right BBB is normal. With further slight delay in the right bundle branch conduction we will see the evidence in the ecg as merely an exaggeration of the normal. However, with slight delay in the left bundle branch conduction, neutralization of the normal direction of depolarization of the septum must first occur before the abnormal direction of depolarization is to be found in the ecg. Therefore the ecg evidences of lesser degrees of left BBB are not easily determinable by ordinary clinical electrocardiography.

Heart size has definite prognostic significance. In 149 patients with BBB and marked cardiac enlargement the average survival period was 2.5 years, with only 19 per cent still alive. In 240 patients with BBB and no cardiac enlargement the average survival period was 4.2 years and 44 per cent are still alive.

Summary

A brief review has been given of the current concepts regarding bundle branch block. From a study of over 800 cases it may be concluded that the presence of BBB is not the most important factor in the prognosis of the patient. More important still is the status of the patient's cardiac condition as determined by the etiology of the heart disease, the heart size, the presence or absence of subjective or objective evidence of heart failure, the presence of hypertension, valvular disease, congenital cardiac malformation, pulmonary embolism, angina pectoris, or myocardial infarction. When bundle branch block is found without any other evidence of heart disease it should not

be concluded that the patient has a serious heart condition, but a complete cardiac study and periodic follow-up is called for. The presence of bundle branch block in such a patient is a challenge, and careful observation over a sufficient period of time is necessary before reaching a final diagnosis.

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Soft Bread Not Necessarily Fresh

Use of chemical bread softeners makes it possible to fool the average consumer because softness and freshness are closely related in the minds of most people, according to Dr. James R. Wilson, secretary of the Council on Foods and Nutrition of the American Medical Association.

When buying a loaf of bread, the average consumer prefers one that is soft, Dr. Wilson wrote in the current *Today's Health*, published by the A.M.A. Few persons ever have heard of chemical bread softeners, which have not been unquestionably safe, he added.

The council views the use of the chemical bread softeners with considerable apprehension, Dr. Wilson stated, adding:

"Available knowledge of the possible toxicity of these substances is fragmentary; particularly is evidence lacking as to chronic toxicity. The employment of these agents in the processing of such basic foods as bread and bakery goods, as well as other foods, such as ice cream, candy and peanut butter, could lead to the ingestion of considerable quantities of these materials of uncertain toxicologic action.

"Unless the complete harmlessness of these agents can be demonstrated beyond reasonable doubt, they should not, in the council's opinion, be employed in basic foods."

A report in the *Federal Register*, an official United States publication, stated that "there was evidence tending to show

that some of the polyoxyethylene mono-stearate [the bread softening compound] prepared for food use contained small amounts of poisonous glycols," Dr. Wilson pointed out.

The American Bakers Association and the American Institute of Baking recently have adopted a statement of principles about the use of such chemicals in bakery products, Dr. Wilson said. Their statement demands that such ingredients be proved completely safe before use.

In addition, the Food and Drug Administration of the federal government recently formulated new federal standards for five different kinds of commonly used breads, and banned the use of certain chemical bread softeners. The rulings have been held in abeyance pending an appeal to the U. S. Court of Appeals by one of the manufacturers of such compounds, according to Dr. Wilson.

Dr. Wilson quoted the Register as stating bread softeners were extensively used by bakers shortly after World War II to make their bread appear fresh and to cut down costs of production, as the chemical compound effectively substituted for the eggs and fats previously used to give softness to bread.

Furthermore, Dr. Wilson added, the chemicals which kept bread appearing fresh make possible the practice of "bread rolling" by unscrupulous route salesmen. "Bread rolling" consists of picking up old bread at one store and delivering it as fresh bread to another, a practice condemned by all reputable route men and employers.

Differential Diagnosis of Coma With Suggestions For Emergency Treatment

This summarization attempts to cover the essential information on the subject and is designed as a time-saving refresher for the busy practitioner.

Coma is a state of unconsciousness from which the patient cannot be aroused. In our present motor-car era with a population which is progressively aging, with an increasing social use of alcohol and the injudicious use of sedative drugs, coma occurs in about 5% of the emergency admissions of a general hospital.^{1,2}

The etiology of coma encompasses almost the entire field of medicine and it may be the terminal phase of almost any disorder. French has classified coma as belonging to two main groups.³

a. Cases in which coma is not a prominent early symptom but occurs later and after the diagnosis has been suggested by other symptoms. He includes in this group—the coma of Typhoid, Rheumatic Fever, Meningitis, Encephalitis, Uremia, Diabetes, Leukemia, Pernicious Anemia.

b. Cases in which coma comes on early and is probably the most prominent feature. In these he includes head injuries, vascular lesions of brain, drugs, lead poisoning, excessive temperature changes, hemorrhage, etc.

The treatment of coma whether medical or surgical depends upon the cause and, as Lester Mount points out, the acute causes of coma are the most difficult to diagnose differentially. He has classified coma as follows:¹

A. Diseases Directly Involving the Brain

1. Brain injury
2. Subdural hematoma acute
3. Subdural hematoma chronic
4. Epidural hematoma
5. Cerebral hemorrhage
6. Cerebral Thrombosis
7. Thrombosis of venous sinuses
8. Cerebral embolism
9. Subarachnoid hemorrhage
10. Encephalitis
 - a. Epidemic
 - b. Secondary to exanthem: Mumps, Measles
11. Brain abscess
12. Meningitis — Tuberculous, Influenzal, Meningococcal
13. Brain tumor
14. Post-convulsive coma

B. Diseases Not Primarily Involving the Brain

1. Severe fevers
2. Metabolic diseases — Diabetes, Addison's, Myxedema
3. Uremia
4. Stokes-Adams syndrome
5. Coma due to poisoning — alcohol, lead, drugs
6. Coma due to gases — illuminating (CO), sewer gas (H₂S), and (CO₂)

7. Caisson Disease
8. Shock—*a.* due to injury
 - b.* due to hemorrhage —
from intestinal tract,
lungs, ectopic pregnancy,
aneurysm, rupture, etc.
9. Excessive temperature—Heat stroke,
heat exhaustion, freezing
10. Hysterical coma
11. Simple fainting

HISTORY

The history of the conditions preceding the onset of coma is an important aid to diagnosis or, if that is not available, it is important to obtain all the available data pertaining to the circumstances in which the comatose patient was found. A history of previous diabetes or high blood pressures; of auto accident or fall; of an environment with extremes of temperature or gases; of the ingestion of alcohol or drugs may make the diagnosis a comparatively simple thing. It must be emphasized, however, that alcoholics are not immune to other causes of coma and that an area of contusion or laceration on the scalp does not of necessity make cerebral trauma the sole cause of the coma found as coma may have preceded the fall which caused the laceration. The environment is especially helpful when the history is sparse so the doctor must scrutinize it carefully to include all containers which may have held alcohol, drugs, poisons or foods and even save them for later chemical analysis.

PHYSICAL EXAMINATION

In emergency cases, with no history obtainable, the physical examination is of the utmost importance in diagnosis and here the examiner must make use of his own senses to the utmost.

I. Sense of Sight

A. General Appearance

1. Age—Cerebral hemorrhage is more common in the elderly. Cerebral em-

bolism in the younger individual (who is more prone to endocarditis.) Metabolic disorders: Uremia and Diabetes, are more often found in the older individual. Epilepsy and infections are more common in younger people.

2. *Abnormal position of the limbs* as found in fractures or trauma. The presence of convulsive movements suggests epilepsy or brain tumor or occasionally insulin shock or eclampsia. An everted lower extremity suggests paralysis of that extremity if eversion is not the result of fracture.

B. Color of the Skin—It is cherry red in carbon monoxide poisoning. Cyanosis is characteristic of severe head injuries, epileptic seizures, late diabetic acidosis (here the skin and tongue are dry). A flushed face occurs early in diabetic acidosis, in the alcoholic and occasionally in cerebral hemorrhage. A pale yellow color of the skin is found in the uremic. Pallor of the skin occurs in hemorrhage either internal or external, cardiac syncope and Stokes-Adams syndrome. A brown pigmentation of the skin and mucous membranes suggests Addison's disease. If petechiae are present in nail beds, conjunctivae and mucous membranes one should look for cerebral embolism.

C. Specific Evidence of Trauma of a Causative Factor—Lacerations or contusions of the scalp, blood or spinal fluid from the nose or ears, lend weight to the diagnosis of cerebral trauma. A discharging ear may be suggestive of a brain abscess or sinus thrombosis. A previously scarred or newly bitten tongue may indicate epilepsy. The lag or drooping of a corner of the mouth or the incomplete closure of one eye are evidences of facial paralysis. A blue line on the gums suggests lead poisoning.

Evidence of hypodermic injection or "main line" antecubital scars are possible evidence of drug addiction and overdose.

D. Pupils—Unequal pupils suggest a unilateral intracranial lesion. Dilated

pupils may come from barbiturate poisoning, cerebral hemorrhage, alcoholism, or belladonna poisoning. Constricted pupils may come from morphine poisoning or hemorrhage into brain stem (pontine hemorrhage). Conjugate deviation of head and eyes indicates an intracranial process. Unilateral ptosis, dilated fixed pupil and deviation of eye to temporal side suggests intracranial aneurysm of internal carotid artery.

II. Hearing

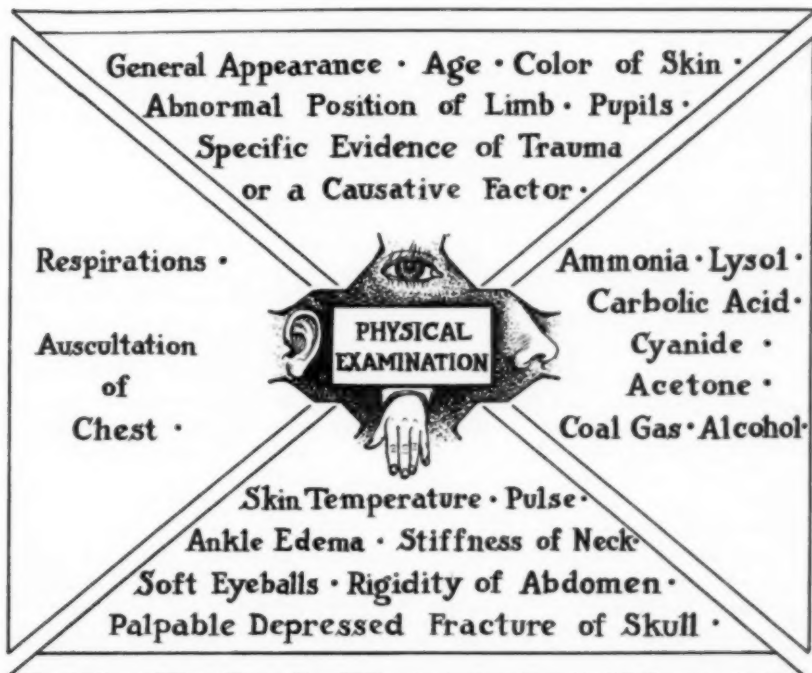
A. Respirations—If they are rapid it suggests the presence of fever or acute infection, pulmonary edema or chronic pulmonary disease. Air hunger (Kussmaul breathing) is found in acidosis as in diabetic acidosis. Slow respirations suggest early increased intracranial pressure or morphine poisoning or freezing. If respira-

tions are loud and stertorous apoplexy comes to mind immediately. A waxing and waning respiration with apnea (Cheyne-Stokes) occurs in arteriosclerotic and hypertensive heart disease, nephritis, increasing intracranial pressure and also in heat stroke. Sighing respirations and extreme pallor occur in severe hemorrhage as in a ruptured ectopic or a ruptured viscus. A rigidly held abdomen accompanies this in the early stages.

B. Auscultation of Chest—Auricular fibrillation or evidence of valvular heart disease points to cerebral embolism. Evidence of râles or moisture in chest suggests pulmonary edema as result of cardiac failure or thrombosis.

III. Sense of Touch

A. Skin—In diabetic acidosis the skin is hot and dry, in hyperinsulinism the skin



is moist and clammy. In heat exhaustion the skin is hot and dry, in freezing the exposed skin is cold. Other causes for cold clammy skin are morphine poisoning, shock from massive hemorrhage, myocardial infarction and pulmonary infarction. A powdery feel to the skin (uremic frost) may be found in uremic patients.

B. Pulse—A slow pulse is usually found in coma as the result of freezing, morphine poisoning, Stokes-Adam syndrome. A slow, full and bounding pulse on the other hand is more suggestive of increased intracranial pressure from tumor, cerebral hemorrhage or intracranial trauma. A rapid, full, bounding pulse usually appears in acute infection, congestive heart failure, hypertension and nephrogenic disease. A rapid, thready pulse is found in massive hemorrhage. An irregular pulse directs attention to heart and with auricular fibrillation cerebral embolization must be considered.

C. Other Tactile Impressions—Those to be found include the presence of a palpable depressed fracture of skull, ankle edema as in heart failure, uremia or cerebral embolism, soft eyeballs as in diabetic acidosis, stiffness of neck as found in meningeal irritation of meningitis or intracranial hemorrhage—and the rigidity of the abdomen in a punctured viscus or ruptured ectopic.

IV. Sense of Smell

Even with the unmistakable odor of alcohol present, the examiner must look further for the cause of coma as associated head injury so frequently accompanies profound alcoholism. The sweet fruity odor of acetone is present in diabetic acidosis and an ammoniacal odor in the uremic.

In observing the surroundings the doctor may still find evidence of the distinctive smell of coal gas, lysol, carbolic acid, or cyanide, which may give a hint to poisoning as the cause of coma.

The principal diagnostic points for the

more common causes of coma are in summary:

I. Alcoholic Coma

The face is flushed, respirations are slow, deep and snoring, the pulse is rapid and full, the temperature is normal or below and pupils are dilated and equal. The patient will usually respond to painful stimuli. Glycosuria may be present but the specific gravity will be low in contrast to high specific gravity in diabetic acidosis. The breath reveals causative agent and the alcohol in the blood over .2% is diagnostic if head injury as cause of coma has been ruled out.

II. Cerebral Injury

The nature and extent of the cranial trauma decides whether the patient has a cerebral laceration or hemorrhage. The onset of the coma in these may be sudden or gradual.

A. Epidural Hemorrhage—The typical history of an epidural hemorrhage is that of injury with unconsciousness, a lucid interval or not with increasing hemiparesis and a dilated pupil.

B. Subdural Hematoma

1. *Acute*—Here the suggestive findings are a history of head injury with headache and mental disturbances, a fluctuation in the state of consciousness, dilatation of one pupil and focal or scattered neurological findings.

2. *Chronic*—In this type there is a history of head injury (or alcoholism) followed weeks or months later by headache (intermittent and gradually more severe), vomiting, disturbances in vision (blurring) impaired memory becoming complete disorientation. There is weakness of extremities on one or both sides and finally unconsciousness which may fluctuate in degree at first.

C. Cerebral Hemorrhage—As contrasted with age of individuals with cere-

bral thrombosis this group is the younger. There is usually a preceding high blood pressure or evidence of diseased blood vessels. The onset is sudden with headache before gradually lapsing into coma.

D. Cerebral Thrombosis—In older age group. Usually in patients with diseased (arteriosclerosis or syphilis) blood vessels, heart disease and low blood pressure. There are often premonitory symptoms of temporary weakness, numbness, transitory speech defects. Frequently the onset occurs during sleep and hemiparesis occurs before coma (which may even be absent in thrombosis).

E. Cerebral Embolism—Occurs in much younger age group. Diagnosis can only be made if a source of the embolus, as in rheumatic endocarditis, is present. Onset is sudden and maximal immediately.

F. Subarachnoid Hemorrhage—This is usually the result of the rupture of an aneurysm. The history is that of the sudden onset of severe headaches usually occipital and, with great hemorrhage, a loss of consciousness. When consciousness is regained the patient has a stiff neck and positive Kernig's sign. The most frequent site is an aneurysm of the Circle of Willis.

III. Epileptic Coma

Following the convulsion it is indistinguishable from other comas as the patient is relaxed, with a pulse which is rapid and full, breathing stertorous and face congested. The supportive evidence, if no definite history is obtainable, are a freshly bitten tongue showing old scars and foam at the mouth and incontinence of urine and feces.

IV. Diabetic Coma

Onset is usually slow but may be rapid (as in the presence of a severe infection) with thirst, frequent urination, pain in abdomen and vomiting as premonitory signs. When comatose the findings are air hunger (Kussmaul breathing), rapid

weak pulse, soft eyeballs, fruity acetone odor and dry flushed face and dry skin.

V. Hyperinsulinism

Onset is usually sudden with hunger a premonitory sign. This is accompanied by headache, palpitation, diplopia, confusion and muscular twitchings or even convulsions and coma. On examination the skin is pale and moist, pulse is rapid and full with normal respirations. Tremor may be present.

VI. Severe Hemorrhage

This is usually indicated at once by sudden severe blanching of cheeks, lips, and mucous membranes. The pulse rate rises to 120 or even 150 and is thready. Respirations are sighing, extremities are cold. The coma comes on suddenly but doesn't remain deep for long. If the bleeding is internal in an apparently healthy person the most usual cause in a man is duodenal ulcer, in a woman a pelvic hematocoele or ruptured ectopic gestation.

VII. Excessive Temperature

A. Heat Exhaustion—Heat exhaustion or prostration is more frequently found during periods of high humidity in debilitated individuals. The history may be that of a feeling of oppression followed by faintness, collapse and loss of consciousness. The picture is that of a pale individual with a weak rapid pulse, normal temperature, irregular respirations, a cold clammy skin and dilated pupils.

B. Heat Stroke—Heat stroke occurs in patients exposed to high temperatures especially if the humidity is high. The history is that of general malaise, yawning, headache, dizziness with gradually increasing restlessness, severe pain in head and chest and unconsciousness. The patient has a flushed appearance with hot dry skin. The temperature is very elevated up to 106° or 110°. At first the pupils may be dilated, later constricted. At first the pulse is full and rapid and

breathing deep and rapid. Later the pulse becomes weak and irregular and the breathing Cheyne-Stokes type. The chief difficulty is to rule out a vascular lesion of brain. Usually there is rapid recovery or a fatal ending with hyperpyrexia in heat stroke and occasionally the differential may be arrived at only at autopsy.

C. Freezing —This cause of coma is immediately made manifest by the patient's surroundings. The patient presents a picture of tranquility with low temperature, pulse, respirations. The exposed portions are cold and stiff and pale.

VIII. Coma Due to Poisoning

Coma due to poisoning other than illuminating gas or sewer gas can seldom be accurately arrived at unless the circumstances (usually an empty bottle or hypodermic) point to a specific drug taken in overdose accidentally or with suicidal intent. Diagnosis rests on gastric content analysis. In barbiturate poisoning the skin is often cyanotic, pupils variable, respirations shallow, slow; there are occasional twitchings. In morphine poisoning the skin is cold and clammy, pulse and respirations are slow, temperature is subnormal and pupils pinpoint.

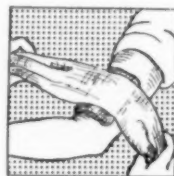
IX. Hysterical Coma

Hysterical coma must be arrived at by exclusion of other causes. In addition suffice it to say that if in the presence of an audience the patient is found in an histrionic attitude with a flushed face, a normal or rapid pulse, respirations that are variable and with fluttering eyelids it will be wise to attempt to raise the eyelids. In a patient with hysterical coma there is rolling upward of eyeballs when an attempt is made to raise the eyelids.

Emergency Treatment

The treatment of coma is essentially that of the underlying disease or injury but until the cause has been positively identified certain emergency measures, as

indicated by the immediate findings, must be undertaken.



1. The immediate control of visible hemorrhage by the use of pressure bandages and tourniquets.

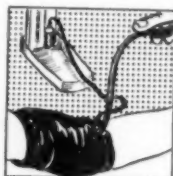
2. The maintenance of a clear airway by removal of loose teeth and secretions in mouth and the maintaining of a forward position of the tongue.



3. Treatment of shock: Maintain body heat, Trendelenburg position, use of O_2 and glucose and saline or plasma until whole blood is available. The careful

handling of patient in moving is imperative.

4. Pulse, respirations and blood pressure should be checked frequently. If blood pressure drops too low shock (qv.) may be imminent. If pressure is mounting venesection may be necessary.



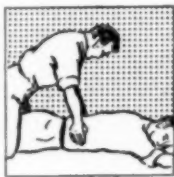
5. O_2 inhalation to combat the anoxia that accompanies coma. Hurley and Motley point out that the two essential factors in the maintenance of a normal

respiratory gas exchange in comatose

patients are: 1.) An inspired oxygen partial pressure of such magnitude (as gotten by administration of a high concentration of oxygen) as to saturate arterial blood, and 2.) Adequate ventilation (again with a high concentration of O_2) to wash out CO_2 effectively and prevent respiratory acidosis. Even in CO poisoning the addition of CO_2 to O_2 does not seem advantageous. O_2 alone is preferable.⁴

6. Artificial respiration.

Hurley and Motley state that CO_2 should not be used with oxygen in respirators, resuscitators, or insufflators for treating asphyxia because the use of even 5% CO_2 increases the acidosis in an apneic subject in need of artificial respiration.⁴ (The Council on Physical Medicine and Rehabilitation of the American Medical Association and American Red Cross recommend O_2 alone in resuscitators and inhalators).



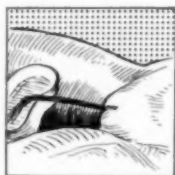
7. Gastric lavage

and specific antidotal therapy where indicated in poisoning or simple alcoholism. Use of stimulants is limited to combatting the effects of de-

pressant drugs, uncomplicated alcoholism or heart block. Morphine is contraindicated in the unconscious patient.

8. Catheterization

with testing for presence of sugar and acetone. Follow this with treatment for hyperinsulinism or acidosis as indicated.⁵ Peace and Cooke give a quick rule of thumb for the



determination of the amount of insulin to give in the presence of glycosuria before sending the patient to hospital:

If Benedict's solution is red — give 40 units

If Benedict's solution is orange—give 32 units

If Benedict's solution is yellow—give 20 units

Add 20 units if diacetic acid test is positive, another 20 units if drowsy and another 40 units if in coma. They state that the incidence of diabetic coma has become greatly reduced because of the better use of insulin, antibiotics, more clinics for diabetics and a better understanding between patient and doctor.

Tolstoi suggests 25 units every $\frac{1}{2}$ hour—examining the urine for sugar and acetone before each insulin injection. And as long as acetone is present he suggests crystalline insulin in doses as indicated by the sugar quantity present in urine—25 units for four plus and 15 units for 2-3 plus reaction or, if sugar free—the juice of an orange (at half hour intervals).⁶



9. A quick neurological check

with examination of pupils, reflexes and optic discs to rule out possibility of need of spinal tap and help confirm diagnosis.

10. Hospitalization

should be instituted as soon as feasible so that the correction of fluid or electrolyte imbalance, blood transfusions, chemotherapy (for severe infection or as a prophylactic measure), further blood chemical and urine analyses, electrocardiograms, x-rays, blood cultures, CO_2 combining power and spinal tap as



well as neurosurgical consultation may be the more quickly accomplished.

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Finds Drug Aids in Treating Psychoses

Desoxycorticosterone acetate (doca, trade mark), a synthetic steroid hormone, may prove effective in the treatment of certain types of psychotic cases, it was reported in the current *Archives of Neurology and Psychiatry*.

The drug was administered to 21 persons suffering from such disorders as schizophrenia, manic-depressive psychoses, involutional psychoses and psychoses associated with mental deficiency. Twenty-six other such patients who acted as controls were not given the drug, according to Dr. Ruth Jens, Salem, Oregon, associated with the University of Oregon Medical School.

Seventeen of those patients (81 per cent) who received doca therapy improved, compared to seven (27 per cent) of the control group. Four of the patients who were administered the drug were able to return home, having had a remission of the disease; one is being prepared for return home; six are now able to be employed in the industrial departments of the hospital, and seven are now able to assist with duties in connection with ward routines.

Four (19 per cent) were considered totally unimproved.

Of the control group, one patient was able to return home following remission of the psychosis, four showed improvement, two showed moderate improvement, and 19 were considered unimproved.

Treatment consisted of intramuscular injections of five milligrams of the drug daily, six days a week. Dr. Jens stated. This therapy pattern was kept until either sustained clinical improvement or failure was established. When clinical improvement was shown, dosage of doca was reduced to five milligrams four times a week, and, as improvement was maintained, the dose was reduced to five milligrams twice a week. In the event of failure to improve, the patient and the control were simultaneously dropped from treatment.

The patients, ranging in age from 17 to 60 years, received treatment for periods ranging from six to 65 weeks. Sustained improvement occurred after from six to eight weeks of therapy, according to Dr. Jens. Only minor side effects to the drug were noted. These included swelling of the ankles and a slight elevation of blood pressure, both of which subsided upon discontinuation of treatment.

Cytology in General Practice

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The control of the infectious diseases, the shift in this country to an older population and the development of improved diagnostic methods have contributed in large measure to highlighting the problem cancer presents as the second most common cause of death in the United States.

Since we still lack a simple screening test to uncover this disease, great emphasis has been placed on detecting its presence in an early stage. Newer and more effective methods of treatment have placed greater responsibility on the physician to diagnose his cancers "earlier than the last one." In this endeavor, the importance of the family doctor can hardly be overemphasized. Even in this age of specialization it is he who first hears the vague complaints that may herald the onset of a cancer. The family doctor is usually the first to be asked to treat the "cigarette cough," the "indigestion," the unusual bleeding and the host of other symptoms that may be associated with a malignant neoplasm. Even more important, in his position as family medical advisor, he is best able to recommend and carry out the most important diagnostic weapon we have: the thorough physical examination, repeated at regular intervals, of both symptomatic and apparently well individuals.

For we know full well that the classical signs of malignant disease are those of a far advanced and often incurable process.

Further, we have come to realize that even the symptoms of so-called "early" cancer in many instances are really those of advanced disease; that truly early cancer gives no symptoms and can be unmasked only by the laborious process of a careful history, thorough physical inspection with pertinent laboratory studies.

It becomes evident then that the eventual fate of many of these cancer suspects is dependent upon the skill, alertness and index of suspicion of their family doctors.

In the past few years exfoliative cytology has come to play an increasingly important role as an adjunct in the detection of early cancer. Since the publication in 1943 of the monograph by Papanicolaou and Traut,¹ numerous investigators have verified the value of the cytologic technique in the diagnosis of cervical cancer.²⁻⁷ At the same time the method has been applied to other body fluids by modifications of the original technique. To date the method has been used in vaginal fluid, bronchial washings, sputum, breast secretions, nasal secretions, pleural and ascitic fluids, urine, prostatic secretions, gastric secretions and rectal washings.⁸⁻¹⁴ While most of these are still in the experimental phase, cytologic examination of vaginal and lung secretions have been firmly established as valuable methods.

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The study of exfoliated cells in body fluids is not new. About a century ago Pouchet¹⁵ studied unstained preparations in an attempt to analyze the sexual cycle. In 1917 Stockard and Papanicolaou¹⁶ made wide use of the vaginal smear in their research of the estrus cycle of the guinea pig. In 1923 Papanicolaou¹⁷ reported finding abnormal cells in the vaginal fluids of women with uterine cancer and suggested that this method be used for diagnosis of cancer. He reported additional corroborative findings in 1928¹⁸ and again in 1933.¹⁹ Little interest was aroused by these publications and the subject lay dormant until Papanicolaou became associated with Herbert Traut. Their studies culminated in the monograph mentioned above.¹ It was following this publication that the revival of interest in cytologic diagnosis surged ahead.

The rationale of the cytologic study is based on the fact that there is a continuous desquamation of superficial cells from every free epithelial surface. These cells are trapped in the surrounding medium—vaginal fluid, sputum, urine, etc.—which preserves them for a time. Further, any malignant neoplasms in contact with such surfaces will also shed their superficial cells into the same medium. In fact, there is a certain amount of evidence to indicate that malignant cells are shed at a faster rate than normal cells.²⁰ Thus it is possible, in preparations of these fluids, to examine cells representative of all the tissues, normal and pathologic, lining the area from which the fluid was originally derived.

Equipment 1. Wide mouth bottle filled with fixative. Capacity should be at least 2 oz. so that most of the slide can be immersed. The fixative used in all cytologic work is a mixture of equal parts of 95% ethyl alcohol and ether. Denatured ethyl alcohol is satisfactory and can be obtained from the pharmacist tax free. The technical grade of ethyl ether is also satisfactory. When not in use the bottle should be kept tightly capped to prevent undue

evaporation of the ether. The fixative may be used over and over, provided it is filtered each time through 4 or 5 layers of gauze. It should be replaced with fresh mixture at least once monthly.

2. Glass aspirating tube six inches long, fire polished to a small opening at one end. A 1 oz. rubber bulb is attached to the other end. Regular 8mm. laboratory tubing suffices very well and is easily worked over a bunsen burner.

3. Cotton tipped applicator—six inches long or the Ayre cervical wooden spatula.

4. Two glass microscope slides with a paper clip on the end of one.

5. Vaginal speculum.

6. Information slip.

Name

Date

Age

Last Menstrual period

Clinical findings

Making a vaginal smear is quite simple but requires attention to detail. All material and instruments needed should be laid out on a table within reach. The bottle containing the fixative should be opened and the clean microscope slides laid nearby. A good light is a necessity and we have found that the best is a headlamp operated from a transformer. This throws a strong beam into the vagina and leaves both hands free. It is far superior to the usual gooseneck floor lamp. A small lamp that attaches to the speculum is an effective substitute. In the interests of economy we use only one rubber glove; the ungloved hand being used to handle the instruments and afterwards to palpate the abdomen during the usual digital examination which follows the taking of the smear.

The patient should not have douched for 24 hours prior to appearing for the examination. She is placed in the usual lithotomy position with feet in stirrups and knees abducted. The operator should be seated at the end of the table. With the gloved fingers the labia are separated and

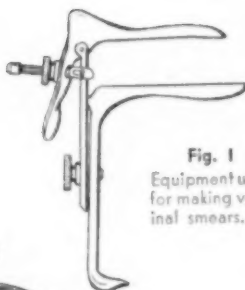


Fig. 1
Equipment used
for making vag-
inal smears.

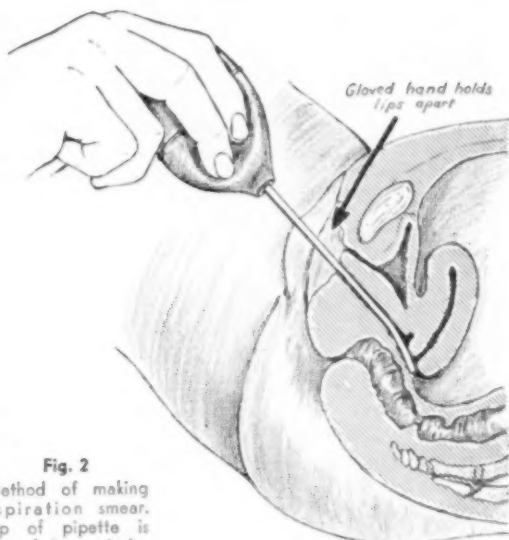
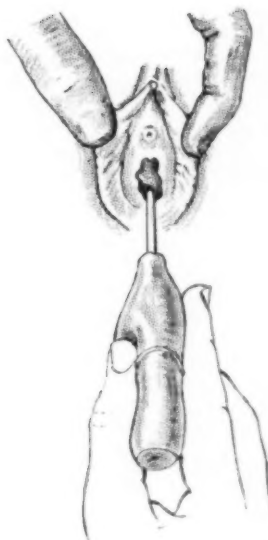
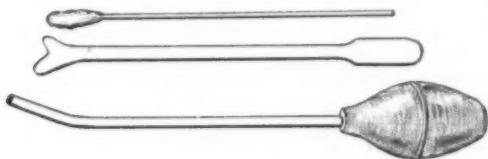


Fig. 2

Method of making
aspiration smear.
Tip of pipette is
placed in posterior
fornix. Pressure on bulb is
gradually released as pi-
pette is slowly withdrawn.

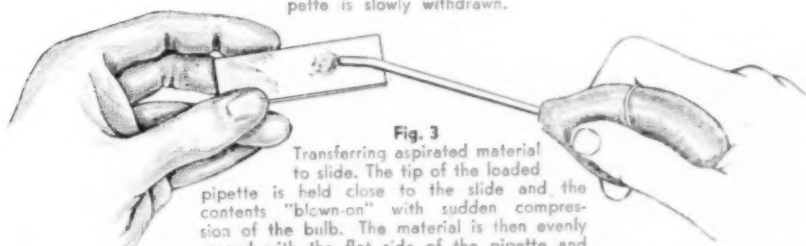


Fig. 3

Transferring aspirated material
to slide. The tip of the loaded
pipette is held close to the slide and the
contents "blown-on" with sudden compres-
sion of the bulb. The material is then evenly
spread with the flat side of the pipette and
the slide is immediately dropped into the
fixative.

the glass aspirating tube with the bulb compressed is gently passed into the vagina towards the posterior fornix as far as it will go, Fig. 2. No discomfort or pain should be associated with this procedure. The rubber bulb is then cautiously released and the tip of the tube moved from side to side in the vagina. At the same time the tube is gradually withdrawn; care being taken that vaginal secretion is not suddenly aspirated into the rubber bulb. Usually in the mature female about an inch of more or less mucoid white secretion is obtained in this manner. The first clean slide is then taken in one hand and held very close to or touching the tip of the aspirating tube. The rubber bulb is then sharply compressed and the secretion forcibly blown onto the glass slide, Fig. 3. With the flat side of the tip the secretion is spread over about two-thirds of the slide which is then *immediately* dropped into the open bottle of fixative. No time should be lost in dropping the slide into the fixative since even the slightest amount of drying has a deleterious effect on the final preparation.

The next step is to insert the speculum. Since lubricant will ruin the smears, the instrument must be dry. This is usually not a serious problem, since most women have enough natural secretion to facilitate its passage. The gloved hand again separates the labia and the lower tip of the speculum is wiped over the exposed vagina to lubricate it. Then it is gently pushed in while the gloved hand moves around the speculum keeping the labia and hair from catching and following the speculum. If done gently and without hurry, this procedure too will be without discomfort. In elderly women with atrophic dry tissues it is permissible to moisten the speculum with water if the above procedure cannot be accomplished. In a rare case a small amount of lubricant may be applied to the introitus only and insertion procured in this manner. The cervix is exposed and carefully examined for erosions, cysts,

lacerations, and other abnormalities. Then a six-inch cotton tipped applicator is wiped over the cervix, Fig. 4. The os may be entered but not penetrated. An applicator carrying the cervical secretion is then rolled on the second microscope slide which is also immediately dropped into the bottle of fixative with the first slide, Fig. 5. It is important not to "scrub" the material onto the slide but to apply it with a rolling motion.

Some physicians prefer to use the Ayre spatula for making the cervical smear. This is a specially made wooden blade with a notched end at one extremity and a rounded end at the other. The notched end is placed in the cervical os and, using a fair degree of pressure, rotated through a full circle, Fig. 6. This actually scrapes off the surface cells in this area which includes the squamous columnar junction. In severely lacerated gaping cervixes the rounded end of the spatula is used to scrape the entire circumference. The material adhering to the spatula is smeared on a slide and immediately fixed as before, Fig. 7. Frequently when using the spatula, a small amount of bleeding will be encountered. This is usually inconsequential and should cause no concern.

Occasionally in elderly patients one will encounter very dry tissues from which no secretion can be obtained. Smears can still be made from these cases by "washing" the vagina. Five cubic centimeters of Ringer's solution is aspirated back and forth a number of times with the glass tube and the resulting mixture blown on a slide and fixed in the usual manner. Enough cells will usually be picked up with this procedure to make a satisfactory specimen.

Care of Equipment After use the glass tube should be flushed with several changes of soapy and clean water and boiled for ten minutes. When thoroughly dry it is ready for use again. The rubber bulb need not be cleaned unless secretion is accidentally aspirated into it. Then it

should be washed with hot soapy water and dried. One rubber bulb and a half dozen glass tubes will be sufficient equipment for most offices.

If a cytologic laboratory is in the community the slides may be delivered still in the fixative. When an out-of-town laboratory is used they should be prepared for mailing as follows:

1. Permit the slides to remain in fixative two hours.
2. Place 1 drop of glycerin on each slide.
3. Cover with a clean glass slide or put the two slides face to face.
4. Wrap in paper and protective cardboard and mail. Write "Glass-Please Hand Cancel" on the envelope.

Do not under any circumstances send the ether-alcohol fixative through the mails. This is a fire hazard and a breach of postal regulations.

Classification of Smears Cytologic laboratories usually report their results in one of two ways. Those using the method of Papanicolaou have five classifications:

Class I—Smears normal in all respects.

Class II—Smears show benign abnormalities such as infection or infestation.

Class III—Suspicious but not conclusive malignancy.

Class IV—Positive evidence malignancy of lesser or

Class V—greater degree.

Some laboratories report three classifications only: Negative, Suspicious or Positive.

Interpretation and Accuracy of Smears As with any laboratory examination, the reliability of the smear is dependent upon the adequacy of the specimen and the skill and experience of the cytologist who reads the slides. Just as no practitioner would perform his own serologic tests without special training so does the interpretation of cytologic smears require special study and long experience gathered from the examination of thousands of smears. Numerous investigators

have commented on the fact that the number of errors of interpretation drop rapidly as the personnel reading the slides gain in experience. Inaccurate reports may lead to tragic consequences and bring the method into disrepute. Thus, while the practitioner should have an experienced cytologist read his slides, this represents no serious disadvantage but puts the smear in the class with numerous other laboratory tests. As the number of cytologic laboratories and trained personnel increase throughout the country, this becomes less of a problem.

Published figures regarding the accuracy of the vaginal smear show a wide range. This is dependent on a number of factors. If the reported material comes mainly from screening apparently well patients, the accuracy will be very high because of the large number of negatives. Smears from series of pathologic cases show an increased error. The location of the neoplasm is another factor with cervical carcinoma giving positive smears in about 90% of cases while endometrial carcinoma is positive in about 80% of smears.

Taking all types of cases we can say that the vaginal smear has an "overall" accuracy varying from 95% to 99%. In comparison to the biopsy Graham et al. studied 181 cases of proved uterine cancer and found that the initial vaginal smear was correct in 91% of cases and the initial biopsy correct in 90% of cases; a combination of vaginal smear and biopsy was accurate in 99% of cases.²¹

Disadvantages As with any examination there are certain disadvantages. As mentioned above, the smears should be stained and read only by specially trained individuals. Exfoliated malignant cells are not seen in relationship to adjacent tissues so it is not possible to grade a cancer by means of a smear. The basement membrane by which invasion is determined is also not seen in these preparations. Finally, the type and origin of the neoplastic cells are not always clear.

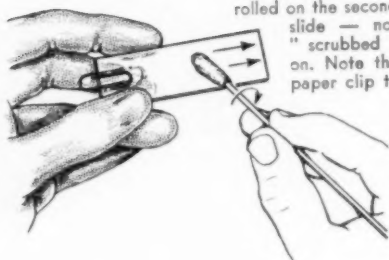
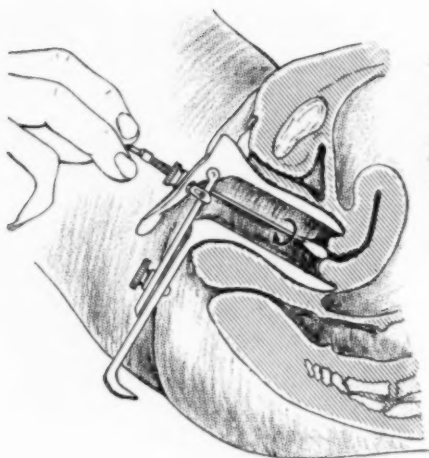


Fig. 5
The loaded swab is rolled on the second slide — not "scrubbed" on. Note the paper clip to

keep the slides from touching in the bottle of fixative.

Fig. 4

Making the swab smear. The tip is wiped over the surface of the cervix and rotated in the os.

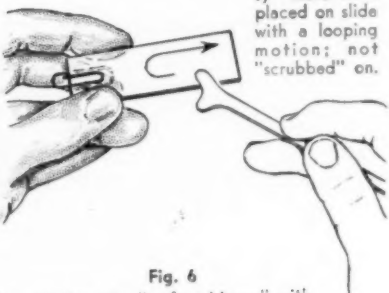
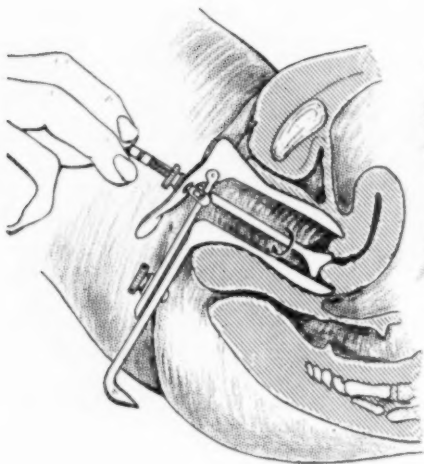


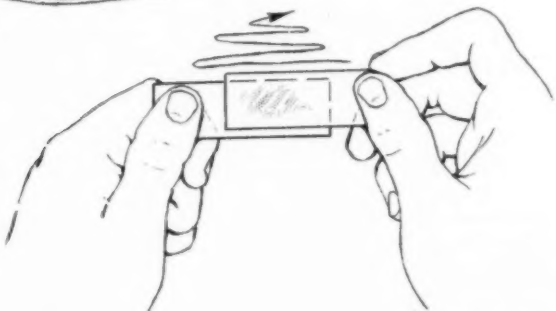
Fig. 7
"Surface-biopsy" material is placed on slide with a looping motion; not "scrubbed" on.

Fig. 6

Making the "surface-biopsy" with the Ayre spatula. The notched end is placed in the os and rotated through a full circle.

Fig. 6

Method of making sputum smears. Material is placed on a slide and crushed with firm pressure while the slides are moved back and forth, spreading the material evenly over the slides.



Advantages Contrasting with the listed disadvantages, the vaginal smear possesses certain definite advantages. Collection of the specimen is a simple office procedure requiring very little special equipment. This is in sharp contrast to the biopsy which frequently requires hospitalization. The procedure is painless and can be repeated as often as necessary without patient discomfort. Its simplicity makes it a relatively inexpensive procedure. Without a doubt its greatest value lies in its use in apparently well females as a "suspicion pointer." There is ample proof that the smear can detect cervical cancer in the absence of clinical signs. These, of course, are exactly the ones which would ordinarily not be biopsied.

Indications for Vaginal Smears

A pelvic examination should be a part of every complete physical examination and a smear should be made in the course of all such initial examinations. If the physician feels it necessary to limit the smears to certain patients then it should be done routinely on the following: all females over the age of 35 years, all females of any age with genitourinary complaints.

Following the report of the initial smears, the test should be repeated as follows:

Class I (negative)—at yearly intervals.

Class II (benign abnormalities) one to three months after treatment for the causative condition is completed.

Class III (suspicious) repeat immediately. Any visible lesions should be biopsied.

Class IV-V Immediate repeat and biopsy. If there are no visible lesions biopsies should be taken at 12, 3, 6, and 9 o'clock.

After surgical or radiation treatment for uterine cancer smears should be made every three months for the first post-operative year to catch evidence of recurrence. They should then be made at six months intervals for a year and annually thereafter.

It is to be emphasized that the vaginal smear is an adjunct to the biopsy. Under no circumstances should radical treatment be instituted on the basis of a vaginal smear alone. The biopsy remains the definitive method of diagnosis and a positive biopsy is necessary before radiation or surgery is started. Just as a smear can miss the diagnosis so can a biopsy, and in the case of positive smears, the biopsy should be repeated as often as necessary to reach a definite conclusion. We know of several cases in which multiple biopsies were necessary before the cancer was proved to be present.

It is also important not to cauterize the cervix during the period of study since this procedure serves only to delay the final diagnosis.

Lung Smears The use of cytology in the diagnosis of lung cancer is rapidly becoming one of the most valuable tools we have in diagnosing this disease. We have here a far different situation from that of the easily accessible uterine cervix. In early cases the x-ray is frequently indefinite in its results. The bronchial tree can be visualized only by bronchoscope and of the cancer cases bronchoscoped, only 40% yield biopsies. Thus the cytologic smear has frequently become the only morphologic evidence of neoplasm and exerts great influence on the decision to perform an exploratory thoracotomy.

Sputum Smears The patient should come to the office so that a fresh specimen can be secured. It is important that a "deep" specimen from the bronchus be obtained since superficial material from the mouth or nasal passages is of no value.

The patient is asked simply to expectorate into a clean glass jar. This sputum is placed in a petri dish or similar container and teased apart with wooden applicator sticks. Bloody flakes or solid material are transferred to a clean glass slide. This is covered with another slide and the material crushed and spread with firm pressure on the slides. The slides are

then pulled apart and dropped back to back into the ether-alcohol fixative. Fig. 8. Two such sets or four slides should be made of each specimen. After fixing for at least two hours they are removed, placed face to face with a drop of glycerin between each two slides and mailed in the same manner as the vaginal smears.

If the patient cannot come to the office at a convenient time it is permissible to have him cough into a clean glass container with a tight stopper. This should be delivered and smeared on slides within an hour. If a longer period of time must elapse before the specimen can be processed one should then fill the container with 70% alcohol and the specimen be coughed into this. Fixation is then immediate and one may wait several days before making the smears.

Procurement of bronchial aspirations is a specialized procedure which can be carried out only by a trained bronchoscopist.

Summary

We have described the technique of making vaginal and lung smears; a procedure simple enough to be carried out in any physician's office with minimum equipment. The cytologic method of cancer detection should be used to its fullest extent by general practitioners who see these potential cancer victims first. If every family doctor considers himself a one-man cancer detection center, many early cases will be found.

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Sublobar Bronchopulmonary Segments —Clinical Importance*

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The bronchopulmonary segments comprise the fairly constant anatomical sublobar divisions of the lung. Very few physicians have a working knowledge of these segments and realize the practical clinical value of such knowledge. When progress in thoracic surgery made segmental resection technically possible, information about the bronchopulmonary segments became much more important.

In recent years many workers, especially Brock, Boyden, Foster-Carter and Jackson and Huber have attempted to clarify the bronchopulmonary anatomy, so that at the present time there is a good understanding of this subject. (For a bibliography the reader is referred to *RADIOLOGY*, Vol. 56:353, March, 1951.) The nomenclature is still somewhat confused, although most workers seem to have adopted the classification of Jackson and Huber. For the physician who does not specialize in roentgenology or in diseases of the chest, the choice of nomenclature is of less importance.

However, it is most important for him to have an appreciation of the fact that the lobes are divided, with considerable regularity, into certain segments; that these segments can be recognized and identified, chiefly in the lateral roentgeno-

gram; that limitation of a disease process to a single segment or group of segments is of the utmost importance in differential diagnosis and pathogenesis; and that if a segment is collapsed, the possibility of peripheral bronchogenic carcinoma must be seriously considered. In each segmental lesion every effort must be made to prove or disprove the diagnosis of carcinoma.

There are a number of basic general and specific considerations.

First: The usual postero-anterior film of the chest, even when taken in stereo, is entirely inadequate to accurately localize a given shadow and to determine whether it is of segmental distribution. *A lateral view is essential.* We recommend that the lateral view be taken with a stationary grid and that it be taken with as short a time as possible, in the neighborhood of 1/20th of a second or less. In P-A roentgenograms the segments are superimposed, so that in most instances it is impossible to localize a given shadow to one segment. In the lateral projections the segments can be delineated and clearly

* Much of this material was originally presented in *Radiology*, 56:333-354, March 1951.

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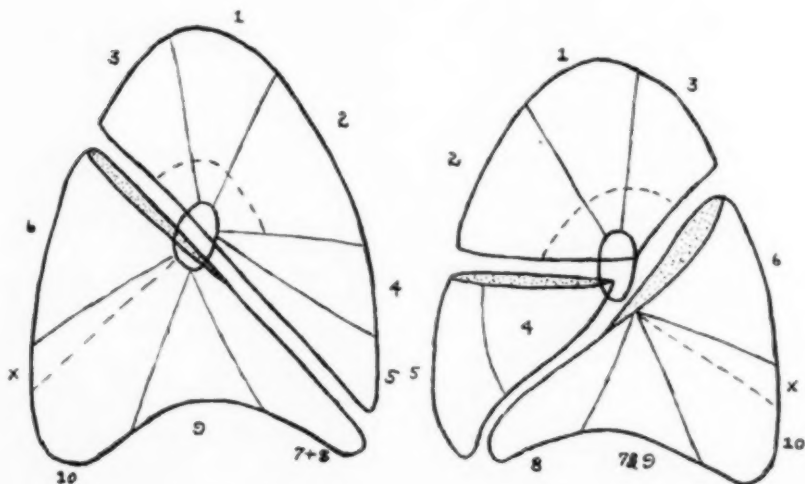
separated. (See diagrams, Figs. 1 and 2.)

Second: A study of bronchograms will enable one to quickly identify the location of the various segments, so that it will become easier to identify the position and appearance of the segments on plain roentgenograms. Brock's monograph is especially valuable in this regard. A stationary grid will improve the quality of the bronchograms considerably.

Third: While laminagrams and bronchoscopy are of considerable value in the

diagnosis of lesions of the major bronchi, they are of distinctly less value in lesions of the sublobar bronchi.

Fourth: Localization of a given shadow on the roentgenogram to a segment or group of segments is important because of the inference that such shadow *may* be due to changes which are secondary to a disease of that specific bronchus. Therefore, once the segmental character of a lesion has been recognized, the size, any variation in position and the location of



Figs. 1 (left) and 2 (right). These semi-exploded, schematic diagrams show the location of the bronchopulmonary segments as they are seen in the lateral roentgenogram. No attempt has been made to depict the surface anatomical areas of the mediastinal and lateral aspects of the lungs, since the lateral roentgenogram is two-dimensional. The variations between the two surfaces have been averaged to approximate the shadow-area a given segment would cast on the film. In the lateral view there is remarkably little superimposition of these segments.

Since the segments resemble a series of triangles with the apices at the hilum, this is a simple way of remembering their position. There are only two important variations. One is the fact that the two segments of the middle lobe (B_4 and B_5), as seen in the lateral view, lie one behind the other. The other is the fact that the cardiac (B_7) segment overlies the middle basal (B_6) segment in the lateral view of the right lower lobe.

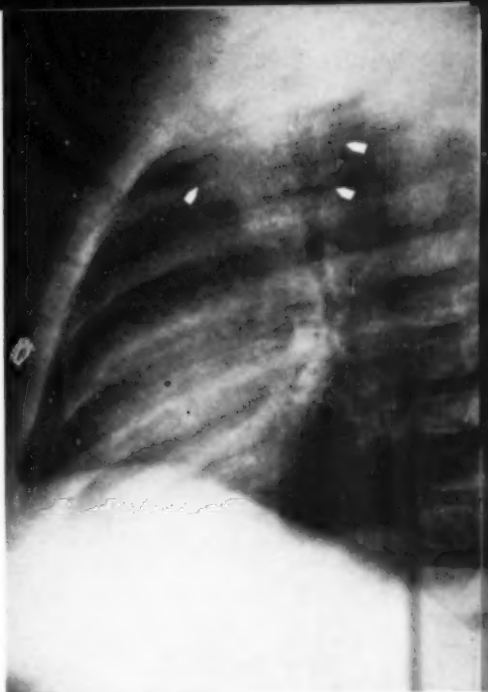
The axillary subdivisions of the pectoral (B_{2a}) segments can be recognized and are indicated by dotted lines as suggested by Temple and Evans.

These diagrams and all lateral roentgenograms are reproduced so that the reader views them from the position of the tube and in the line of the roentgen ray as it passes through the body.

These diagrams should be used as a reference when the roentgenograms reproduced in this paper are studied.

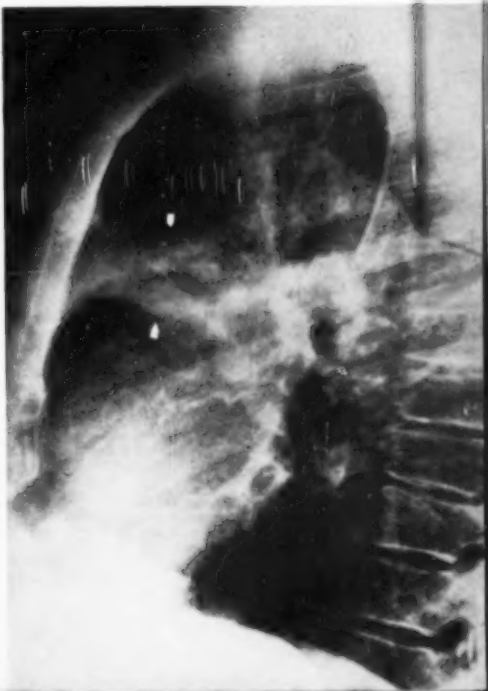
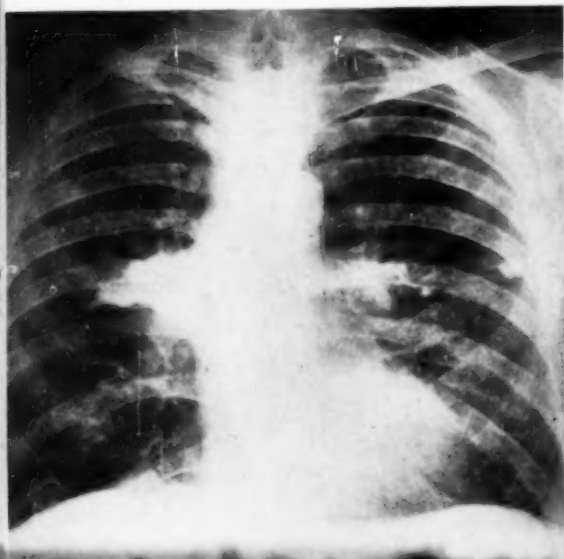
Identification of the segments as seen in the lateral view will be made much easier by such comparison. The numbers are those of Boyden's system.

Figures 1 and 2 are reproduced by courtesy of Radiology.



Figs. 3A (left) and B (right). The P-A view reveals only an indefinite haziness in the medial portion of the right upper lung field. The lateral view shows that the shadow is confined to the apical segment of the upper lobe (arrows) and is sharply defined. The segment is not decreased in size. (Pneumonia of apical segment, R.U.L.)

Figs. 4A (left) and B (right). The P-A view reveals a dense triangular shadow arising in the region of the right hilus. It is limited by the interlobar fissure below. The lateral view discloses that the shadow is not "hilar", but really represents the anterior subdivision of the pectoral segment (arrows). This subsegment is smaller than normal and is therefore collapsed. Note the sharply defined margins even where the lesion does not border on the interlobar fissure. (Carcinoma, arising in the bronchus to the anterior subdivision of the pectoral segment.)



the segment become important facts. This information goes far beyond mere localization for purposes of segmental resection. It is basic to an intelligent differential diagnosis and an understanding of the pathogenesis of the lesion.

Fifth: If this diseased segment is smaller than normal, this indicates the presence of collapse and of probable bronchial occlusion. Segmental collapse requires an etiologic diagnosis without delay, and all methods of investigation including bronchoscopy, bronchography, lamina-graphy, cytologic study of bronchial secretions and even surgical exploration must be used. Even if the bronchial occlusion is not due to malignant neoplasm, the presence of a persistent benign or inflammatory bronchial occlusion may lead to a "drowned" segment, infection and bronchiectasis.

Sixth: The location of a lesion in the lung is of considerable, although not specific, diagnostic import. Lung abscess and tuberculosis are known to be more frequent in those segments which are dependent in the supine position. These are the posterior segment of the upper lobes and the superior segment of the lower lobes. Pneumonia and carcinoma, on the other hand, may be found in almost any position in the lungs. It is obvious that while every attempt should be made to reach an etiologic diagnosis in all cases, nevertheless, the presence of a shadow of unknown cause in an anterior segment should impart a sense of greater urgency, since lesions in these segments are somewhat more likely to prove to be malignant. The exception to this is the middle lobe. Collapse of the middle lobe is almost always due to inflammatory disease ("middle lobe syndrome.")

Seventh: Concepts of the pathogenesis of bronchogenic carcinoma must undergo some revision. In the past, this has been considered to be largely a disease of the primary or of the lobar bronchi. Carcinomas arising in sublobar bronchi were con-

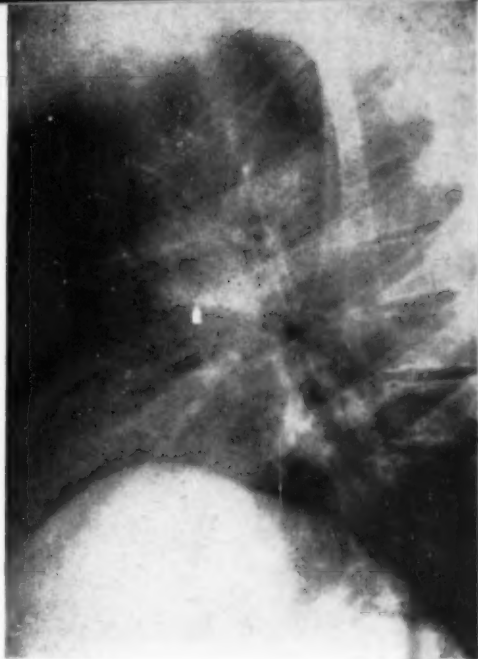
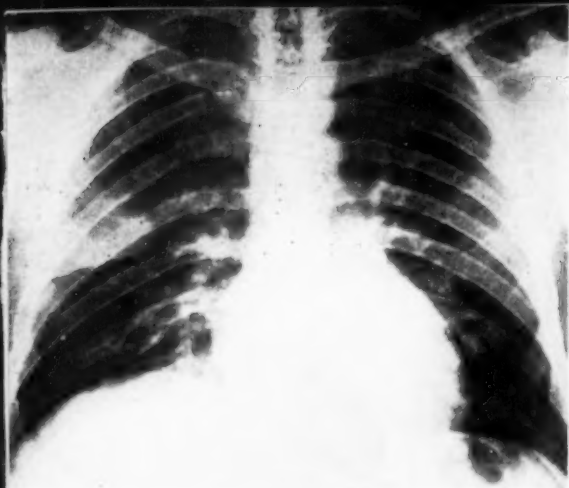
sidered to be quite rare. Most cases were diagnosed on the basis of large areas of atelectasis due to bronchial occlusion and the lesion was usually within bronchoscopic vision and could be biopsied. During recent years more and more peripheral carcinomas have been diagnosed, so that at many institutions the percentage of positive bronchoscopic biopsies has declined. Some of the carcinomas which arise in peripheral bronchi may be recognized if the small peripheral shadow which results can be identified as a partially collapsed segment. The bronchial obstruction may then be proved by bronchography or tumor cells may be found in bronchial aspirations. We have seen patients in whom the correct diagnosis of carcinoma was not made until the tumor had extended centrally and caused collapse of an entire lobe. Obviously, in such instances valuable time was lost and the tumor was erroneously presumed to arise in the lobar bronchus.

If all peripheral lesions are closely scrutinized, studied with lateral radiographs and correlated with a working knowledge of bronchopulmonary anatomy, more peripheral carcinomas will be recognized before they have grown sufficiently to obstruct large bronchi.

The illustrations which accompany the text, and the legends for each are self explanatory. They represent the anatomical appearance of some of the various segments of the lobes as they are seen when involved by one of a variety of disease processes. The cases have been chosen for demonstration of the anatomical size and location of the segments, not on the basis of etiology. The lateral views should be compared with Figures 1 and 2.

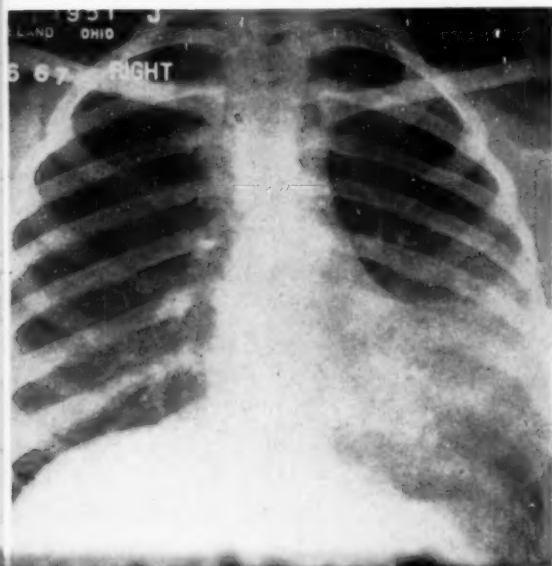
Summary

1. A good working knowledge of bronchopulmonary anatomy is of importance to all practitioners. Such knowledge will influence considerations of



Figs. 5A (left) and B (right). The P-A view reveals a homogeneous, laterally placed density, limited below by the minor interlobar fissure. The lateral view reveals the midaxillary position of the density. The arrow points to the minor fissure. (Pneumonia of the axillary subdivision of the pectoral segment).

Figs. 6A (left) and B (right). P-A view reveals a dense homogeneous shadow in the lower half of the left lung. No anatomical landmarks in this view. The lateral view demonstrates that the entire density is in the lingula, bounded posteriorly by the long fissure. Note the sharp margins on both borders. There is some loss of volume of the lingular segment. (Pneumonia of lingula with accompanying collapse of slight degree.)



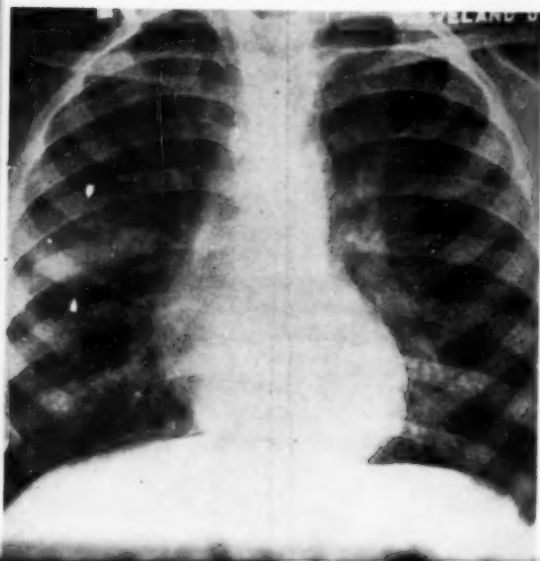


Figs. 7A (above), B (below left) and C (below right). In the P-A view there are no specific findings except for some increased markings in the right cardiophrenic angle. The lateral view reveals that the R.M.L. is collapsed. The arrows point to the fissure on either side of the middle lobe. The lateral bronchogram clearly shows the dilated bronchi in the middle lobe, closely grouped because of the lobar collapse. This is the so-called "middle lobe syndrome", in this instance associated with inflammatory bronchial stenosis, distal bronchiectasis and fibrosis with collapse of the lobe.

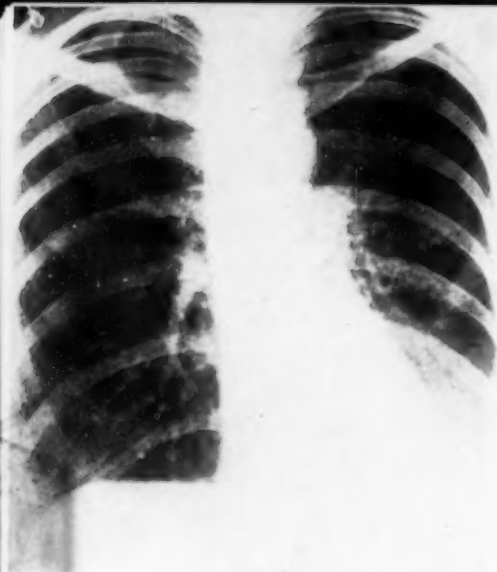




Figs. 8A (left) and B (right). The P-A view reveals a density in the lateral part of the right middle lobe sharply limited by the interlobar septum above (top arrow). The lateral view reveals the density to be posterior (arrows) and to be limited by the fissures above and below. There has been no loss of volume. This is pneumonia of the posterolateral segment of the middle lobe.



Figs. 9A (left) and B (right). In the P-A view there is a single patch of density in the right mid lung, with hazy borders and no special localization. In the lateral view this is seen to be adjacent to the upper part of the long fissure (top arrow). There is no loss of volume. This represents pneumonia of the axillary subdivision of the apical segment of the lower lobe.



Figs. 10A (left) and B (right). P-A view reveals hazy density at the left base and shift of the heart to the left. This, of course, suggests some collapse, but is not definitive. The lateral view clearly demonstrates the location of the collapse. The long fissure bows posteriorly. The arrow points to the posterior margin of the posterior basal segment, in a position which is anterior to its usual location. The apical segment of the lower lobe (above and behind the arrow) is quite radiolucent and is apparently the site of complementary emphysema. The collapse of all the basal segments was due to a mucous plug following abdominal surgery.

differential diagnosis and conceptions of pathogenesis and therapy.

2. A postero-anterior film of the chest is inadequate for localization of any given shadow. A lateral view is absolutely essential. Indeed, a routine lateral view in all chest examinations (except mass surveys) should be done wherever the facilities make it possible. Use of the stationary grid will yield lateral radiographs of superior quality.

3. If a given shadow is recognized as segmental in character, a clue to the etiology may thus be gained, because the causative lesion may be in the bronchus. If, in addition, the segment is diminished

in size, the probability of bronchial occlusion is implied. Every diagnostic aid must then be used to establish an etiologic diagnosis as quickly as possible.

4. Correlation of a working knowledge of the bronchopulmonary anatomy, the use of lateral radiographs, and the judicious use of bronchography will result in the earlier recognition of bronchogenic carcinomas which arise in sublobar bronchi.

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Note: We should like to express our appreciation to Mr. Robert Newhouse of the Department of Photography, Mt. Sinai Hospital.



Scurvy Still a Common Disease

From the fifth through the eleventh month of life, one baby out of six in a series coming to autopsy at Johns Hopkins Hospital showed bone structure changes revealing the presence of scurvy. Scurvy, a result of vitamin C deficiency,

is hard to diagnose in living persons until it is far advanced. The findings at Johns Hopkins lead the investigators, Drs. Richard H. Follis, Jr., Edwards A. Park and Deborah Jackson, to question whether scurvy may not be far commoner among infants than has been generally suspected.

MEDICAL TIMES

Treatment of Pain from Cancer

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The public considers pain to be one of the principal features of cancer. "Will there be much pain, doctor?" is therefore a frequent question asked by relatives of patients with cancer. The misconception stems from our failure to control pain. Too often we adopt a hopeless attitude, after failure of poorly coordinated efforts to control pain. Too often we await the intervention of death to bring the suffering patient relief from pain and to bring us relief from an unpleasant responsibility.

Cooper² says "A patient with well controlled cancer, metastatic or not, is no more ready for the grave than one with well controlled diabetes or a failing heart." Because a patient is doomed in the near or distant future is no reason to give this individual less attention or consideration than one gives to a patient with curable disease. Proper selection of treatment results in relief of pain for most patients. In many cases the failure of pain control is the result of failure to adopt a suitable, carefully prepared plan of action.

The plan of action should commence with simple measures. Drastic procedures should be reserved to be employed only if and when simple measures fail.

The sensation of pain is measurable,³ just as sight and hearing. Aside from minor variations, the threshold for pain is the same for all human beings, regardless of race, color, creed or politics. The reaction to pain stimuli varies tremendously.

Therefore in treating for pain, we must consider the reaction to pain as being of utmost importance.

Utilization of a patient's individual reaction to pain is illustrated by the patient who is better able to bear the pain once he has a clear idea of his true condition. Such patients, when fully enlightened concerning the cause of their pain, are relieved and thoughts more important occupy their minds. Individuals of a different personality makeup find the pain even more unbearable when they have been informed of their true condition.

This aspect of the control of pain is a delicate one but its inclusion and consideration in our armamentarium may be highly rewarding. The psychological approach to pain includes not only knowledge of the personality being treated but an air of confidence and optimism by the physician which is sometimes necessarily a forced one but nevertheless is extremely important as far as the patient is concerned.

Methods of Treatment of Pain

The use of drugs, x-ray therapy, hormones and surgery constitute our range of choices in the treatment of pain. There is no specific order in which these should be utilized in every case. Surgery may sometimes be indicated at the very beginning, whereas aspirin is commonly utilized as

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beginning therapy. Proper evaluation of the patient will permit early decision concerning a satisfactory sequence of methods to be employed for optimum control of pain. The medical approach is usually the initially employed method. Thereby the threshold of pain is raised.

A sequence of drugs is indicated. Good judgment requires that morphine be reserved as a drug of last resort. Beiter¹ recommends the following as a useful sequence of drugs for relief of pain: aspirin, acetophenetidin, codeine, demerol, dolophine and finally morphine.

Salicylates act centrally, probably on the thalamus. Their analgesic effect is slight but definite. Wolff² compares various drugs, giving the percentage by which each raises the pain threshold. Aspirin (gr. XXV) raises the threshold 35% whereas morphine (gr. $\frac{1}{2}$) raises the threshold 70%. Because of lack of respect for aspirin, due to its widespread, non-professional use for minor aches, patients may obtain greater benefit from its use if they are not informed that the pain-relieving drug you have prescribed is merely aspirin.

Aspirin in combination with phenacetin and caffeine or with codeine is more effective than aspirin alone. Phenacetin and antipyrine are non-narcotic drugs which may be employed alone for relief of pain. They are not any more effective than aspirin and they do produce more undesirable side effects than aspirin.

The opium alkaloids constitute a second line of pharmacologic attack on pain. In spite of efforts to improve upon them, codeine and morphine remain the most effective drugs of this group.

Wolff² found the pain threshold raised 50% by $\frac{1}{4}$ gr. of morphine, 70% by $\frac{1}{2}$ gr. and 90% by 1 gr. of morphine.

Figures for codeine² demonstrate that 4 gr. produce no greater effect than 1 gr. Therefore a dose of codeine greater than 1 gr. is of no advantage in relief of pain.

Demerol (Meperidine) should probably be utilized before resorting to morphine. Demerol is about one tenth as active, has less hypnotic effect and is well tolerated orally.

Dolophine (Methodone) is again less powerful but also less toxic than morphine. Dolophine is readily absorbed following oral administration.

Careful evaluation of the effect and value of these drugs must be made by the physician. Morphine is indicated when all of the less toxic and less powerful drugs have been carefully utilized and fail to provide effective relief. With such a program, we shall see fewer patients with minds hopelessly numbed and degraded by morphine.

Hormone Therapy Only those patients who suffer from carcinoma of the breast or prostate are good candidates for hormone therapy at the present time.

The value of surgical castration and administration of estrogenic substance in treating pain from metastatic cancer of the prostate has been well demonstrated. The time of castration differs with the school of thought. Suffice it to say here that castration and the administration of 10 to 15 mg. of diethylstilbesterol daily has resulted frequently in an amazing disappearance of metastases and relief of pain.

Castration, surgical or roentgenological, and androgen therapy in cancer of the breast is a less settled problem. It may be of some value in the pre-menopausal state. Satisfactory results are obtained in only about 25% of the cases.⁷

Roentgen Therapy Deep x-ray therapy holds an important place in the treatment of pain in cancer patients. It is usually employed before large amounts of narcotics are necessary. The value of roentgen therapy for relief of pain of bone metastases is unquestioned. Whether the relief of pain is due to release of tension or whether it is due to the action of x-rays on nerve endings makes little difference

to the patient. A fair trial of x-rays (at least 6 or 7 treatments) is usually indicated before massive narcotic therapy or surgery.

Surgical Measures In planning a program for relief of cancer pain, surgical measures are withheld until all less radical measures have been utilized. Good planning forbids that a pain-relieving operation should be withheld until the patient is a drug addict or a grave surgical risk. Failure to recommend surgery results from a misconception that the cure is worse than the disease. Pain-alleviating operations are not drastic procedures. When offered to the patient before he is hopelessly emaciated or addicted, surgery is worth the moderate risk and the moderate suffering which attends surgical intervention.

The aim of surgery which is planned for relief of pain is interruption of pain sen-

sation by chemicals or by cutting the sensory pathways. Pain pathways have been well established. Almost all pain fibers, visceral or somatic, enter the posterior roots. They synapse with fibers crossing almost immediately in the anterior commissure and then ascend in the anterolateral column as the spinothalamic tract. These fibers carry sensations of pain and temperature. Touch and some deep pain sensations are not included. The fibers become more compact in the spinothalamic tract as it ascends in the spinal cord. Consequently, a small incision in the thoracic, cervical or medullary cord will produce widespread loss of diffuse pain and temperature sensation. Touch, position and other sensations are unaffected.

Chemical interruption is accomplished usually with 90% alcohol. The usefulness of chemical interruption is limited. One indication is trigeminal neuralgia where the pain is limited to an area supplied by one nerve. Injection of one or more peripheral branches of the fifth cranial nerve may result in satisfactory relief of pain. In other situations, alcohol interruption is uncertain or impractical except intrathecally.

Surgical interruption of a nerve pathway in a peripheral nerve is of no practical value. By such procedure all modalities of sensation are lost. All modalities are lost also by posterior rhizotomy, or section of the posterior spinal nerve roots. Posterior rhizotomy is the procedure of choice in pain from cancer of the head and neck or pain confined to small areas of the trunk. The procedure is not acceptable for extremity pain because with all sensation lost, the extremity is rendered useless.

Suboccipital craniectomy is a valued method for relief of pain in cancer of the head and neck. This is combined with resection of the sensory or descending root of the fifth nerve as recommended by Sjoquist⁷ in 1938. Still wider denerva-

Fig. 1



AREAS OF PAIN FOR WHICH SENSORY RHIZOTOMY IS INDICATED

tion is obtainable by the addition of severance of the glossopharyngeal and the anterior part of the vagus as well as the posterior roots of the upper three cervical nerves.

For pain below the level of T6 or T7, upper thoracic cordotomy at T2 is the procedure of choice. For this, an incision is made anterior to the dentate ligament. The incision is carried anteriorly at a depth of four mm. and emerges medial to the anterior root. Cordotomy should ordinarily be bilateral even when pain appears to be unilateral. As long as pain is very intense on one side, the patient may fail to recognize pain on the opposite side. When the dominant pain is relieved by unilateral cordotomy, the less intense pain of the opposite side becomes manifest. A second operation may therefore be required unless the initial cordotomy is bilateral.

Cervical tractotomy may provide satisfactory relief of pain in the arm and high thoracic areas. Fig 4. Until recently the operation was considered unnecessarily risky because of danger of paralysis of the muscles of the phrenic nerve at the C4 level. The technique has now been improved so as to minimize this risk.

The first high cervical tractotomy was performed by Stooky in 1934. Schwartz has been able to obtain a level of analgesia as high as the fourth cervical level and limited to the dorsal one-half of the anterolateral column. Schwartz and O'Leary⁶ reported the first case of medullary tractotomy in 1941. This will also give a high level of analgesia. Mesencephalic or mid brain tractotomy, first reported by Dogliotti in 1938 and Walker in 1941, is theoretically an ideal location for tractotomy. Mesencephalic tractotomy is limited in usefulness because the operation carries a higher mortality than other comparable procedures. Because the spinothalamic roots and also the secondary trigeminal fibers are severed, mesencephalic tractotomy produces analgesia of contralateral face and body areas.

Surgical therapy is not without risks and disturbing side effects. Operative risk is usually minimal. Postoperative posterior root pain (due to traction) disappears within two weeks. The really disturbing problems are undesirable side effects.

Loss of bladder or bowel control and paresis or paralysis of the legs may occur. Such results must be evaluated logically.

Fig. 2

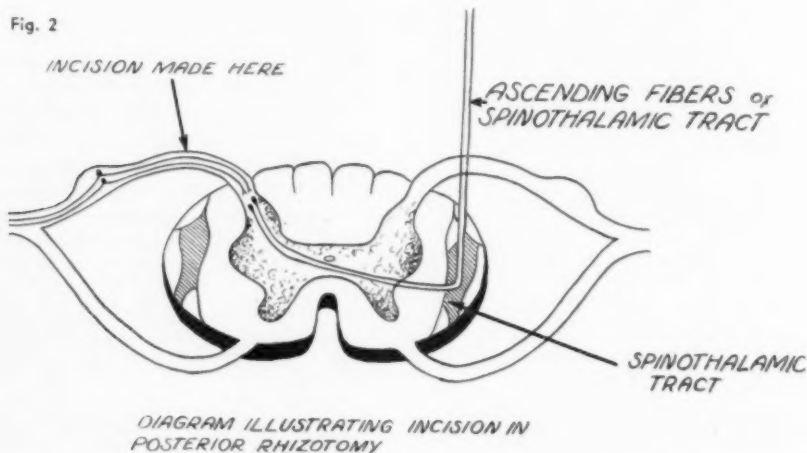


Fig. 3

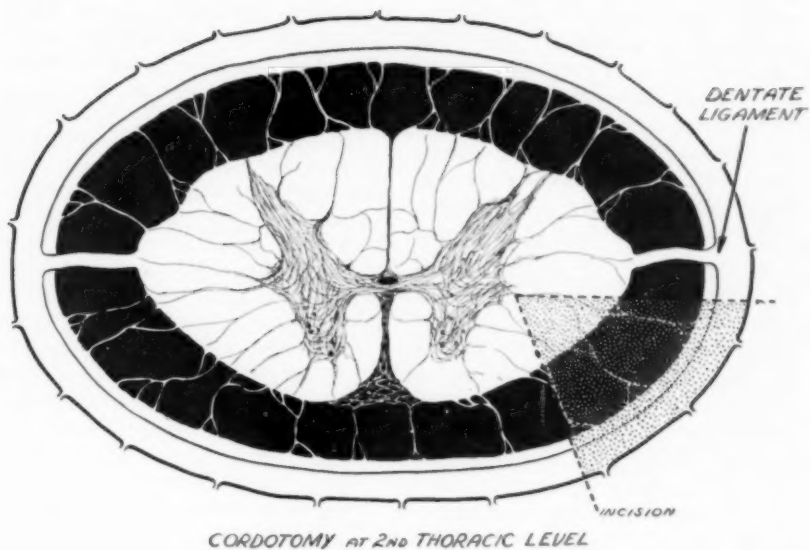
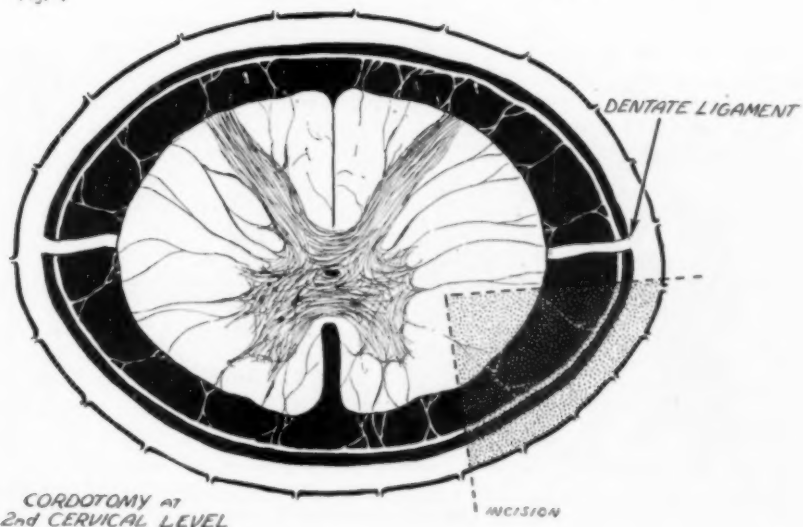


Fig. 4



In a normal patient, leg paralysis would be a serious and regrettable side effect of surgery. None of these side effects are unacceptable in an incurable patient who has been relieved of intractable pain by the operation. Therefore, in spite of occasional complications, spinothalamic, thoracic, high cervical and medullary tractotomies constitute useful means of surgical attack against intractable pain of cancer.

The surgical procedure of last resort is prefrontal lobotomy. Resultant relief of pain is remarkable. As a rule all narcotics can be immediately withdrawn, even in addicted patients. Prefrontal lobotomy produces a transformation of personality.

One must be willing to accept the change to a superficial, lackadaisical personality. The family and friends may be greatly shocked and unable to accept the personality which emerges following the operation, even though the patient be completely relieved of pain.

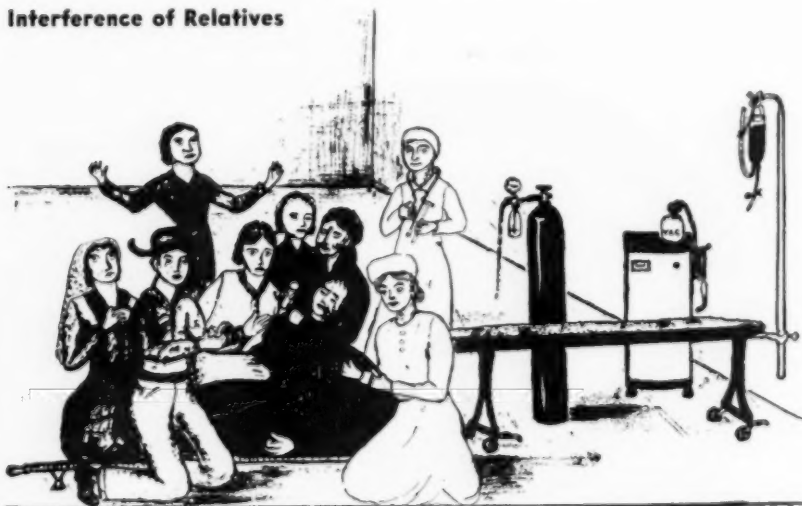
Surgical methods for relief of the pain of cancer are not advocated to the exclusion of other methods. Stress should be placed upon a plan of action permitting the use of all available methods in a proper sequence from the simplest to the complicated. Utilization of an adequate plan will ensure relief from pain to the cancer victim and relief from anxiety to the attending physician.

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Interference of Relatives



Courtesy of Howard L. Puckett, M.D. Stillwater, Oklahoma, and *Journal of the Oklahoma State Medical Association*.

Problems in Intestinal Obstruction*

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Intestinal obstruction presents a diagnostic and therapeutic challenge to both the surgeon and practitioner. The mortality continues to remain high despite the many recent advances in electrolyte balance, intestinal siphonage, caloric requirements and surgical technique. Wangenstein, Haden, Orr, Collier and many others have contributed monumental stepping stones which enable us to understand the pathologic physiology of this condition.

Since intestinal obstruction is a symptom complex and not a disease, it is not enough to make a diagnosis of "just intestinal obstruction." To approach this problem we have devised a plan whereby we can make an earlier and more thorough diagnosis, thus enabling proper therapy to be instituted more rapidly. It is necessary to ask and answer the following four questions to correctly diagnose the condition:

- (1) Is this an intestinal obstruction?
- (2) Is it strangulated or non-strangulated?
- (3) Is the obstruction complete or incomplete?
- (4) Is it a large or small bowel obstruction?

In answer to question number one: "Is this an intestinal obstruction?"; we expect to find the obstructive triad, namely, distention, obstipation and vomiting. The triad may be present wholly or in part, however, its individual parts call for clarification. Since we have no standard for measuring the distended abdomen, we have decided to utilize the anatomic relationship

of the umbilicus to the xiphoid process. We believe that the normal abdomen is scaphoid and not flat, hence the umbilicus is normally placed below the xiphoid. When the umbilicus is on a level with the xiphoid, the abdomen is called *flat*, and when the umbilicus is above the xiphoid, the abdomen is described as being *distended*. Therefore, when the umbilicus is on a level with or above the xiphoid, some pathologic condition exists. When such an abnormally placed umbilicus is found we consider the differential diagnosis of the seven "F's," namely, Fat, Feces, Fluid, Flatus, Fetus, Fibroids and "Phantom" tumors. In almost every case one of the "F's" has been found to be the underlying cause. It is important to record the position of the umbilicus when the patient enters the hospital, and to re-check this every hour thereafter. If the umbilicus is below the xiphoid when the patient is first seen, and one hour later is found on a level with the xiphoid, this signifies early distention. In this way we can avoid the development of a late preterminal distention that so many neglected intestinal obstructions present. Regarding *obstipation*, we know that the average intestinal obstruction passes neither feces or flatus, but we also recall that this may be lacking in incomplete obstruction as for example in Richter's hernia, in which only part of

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the circumference of the bowel is incarcerated. In such cases the resulting irritation and hyperperistalsis may even lead to a diarrhea which can be most misleading when one makes a diagnosis of intestinal obstruction. *Vomiting* will be more thoroughly discussed under question number four. Regardless of the absence or presence of the obstructive triad, it is far more important to elicit the one pathognomonic finding of intestinal obstruction, namely, that *pain and intestinal sounds appear at the same time*. This synchronization of sound with pain differentiates intestinal colic from any other type of intermittent pain. The physician should place his stethoscope upon the patient's abdomen when he states that he is getting his pain, and if it is of an intestinal nature he will hear the rushing bowel sounds at this time.

Question number two: "Is this a strangulated or non-strangulated intestinal obstruction?", can usually be answered by the presence or absence of tenderness. Patients with intestinal obstructions do complain of colicky pain, but the strangulated lesion has pain plus localized tenderness, which is best found by the patient, who will usually locate the exact point of the pathology. The classical example of this is a strangulated inguinal hernia. The patient has diffuse pain over his entire abdomen, but will permit one to palpate it; however, he resents having pressure made over a strangulated mass because of its exquisite tenderness. Our incision is usually determined by the location of the patient's tenderness. Another differentiating point between the strangulated and the non-strangulated obstruction is the appearance of the patient. A patient who has a strangulated intestinal obstruction is acutely and violently ill and usually is in shock or impending shock, whereas the patient with an intestinal obstruction without strangulation does not present such a dramatic picture. The flat roentgenogram may aid in the differentiation of a strangulated from a non-strangulated small

bowel obstruction. If a small bowel, non-strangulated, intestinal obstruction is present, the typical stepladder pattern is observed and the valvulae conniventes are readily seen. If, on the other hand, a small bowel strangulated obstruction is present, no characteristic bowel pattern is assumed since the distended loops arrange themselves in whatever portion of the abdomen the obstruction occurs. The valvulae conniventes are not easily detected or seen because of the extravasation of blood into the strangulated loop of bowel and into the abdominal cavity.

Question number three states: "Is this a complete or incomplete obstruction?" As has been mentioned, a patient with a complete intestinal obstruction passes neither flatus nor feces per rectum, but if the obstruction is incomplete some flatus and feces may be expelled, especially with repeated enemas. It is important not to be misled by the results of the first enema, since a copious movement and flatus may be expelled following its administration. This, however, is material which is distal to the lesion. If repeated enemas bring flatus and feces, then we assume that the lesion is incomplete; if the returns of the repeated washings are clear, we conclude that the obstruction is a complete one. A "scout" film of the abdomen should be taken when the patient arrives. This immediately reveals the bowel pattern and also determines whether or not flatus is present in the region of the hollow of the sacrum. If the flatus over the sacrum is absent following repeated enemas, we consider the condition a complete obstruction, but if flatus continues to come down and appear over the sacral region, the lesion is an incomplete one. A patient with a complete obstruction will appear more ill than one with an incomplete lesion, therefore, the clinical appearance and impression is of importance.

Question number four, namely, "Is this a large or small bowel obstruction?" The most important differentiating factor to

this question is whether or not vomiting is present or absent. Patients with large bowel obstructions do not vomit, but those having small bowel obstructions do. We all have seen late cases of large bowel obstructions where vomiting has been present as a late and not too distressing symptom, but in the small bowel lesions vomiting appears very early. The higher the obstruction the more fulminating the vomiting. Utilizing this one fact, we can usually differentiate the small from the large bowel obstructions. To use the word "fecal" vomiting as being descriptive of intestinal obstruction is incorrect. The term "feculent" is more descriptive, since fecal vomiting refers to a gastrocolic fistula or some similar lesion. The flat roentgenogram is used to further differentiate the small from the large bowel obstruction. It is unnecessary to stand or turn the patient or to give him any contrast media. A flat roentgenogram which can be taken with a portable machine will usually give the desired information. If the obstruction is a large bowel lesion, the roentgenogram usually reveals a large distended colon which appears as a horse-shoe or inverted "U." The rectosigmoid is the most common location for these lesions. If, on the other hand, the obstruction is small bowel in nature, the typical paralleling or step-ladder pattern will be present. The history also aids in differentiating the two types of obstructions. A slow, progressive, chronic, increasing constipation speaks for a large bowel lesion, but a sudden violent attack signifies small bowel pathology. Patients with intestinal obstruction who have had previous surgery are small bowel obstructions until proved otherwise. The large bowel obstruction resulting from postoperative adhesions is a rarity. A two quart diagnostic enema is also a help. The large bowel can usually retain two quarts of fluid plus its usual contents. If the bowel cannot take the two quarts, this speaks for a large bowel lesion.

One may make a proper diagnosis in-

stead of just "intestinal obstruction" by using these four questions. The case, therefore, may be diagnosed as a large bowel, non-strangulated, incomplete intestinal obstruction, or a strangulated, small bowel, complete intestinal obstruction, depending upon the findings.

Treatment We have devised a simple plan for the treatment of intestinal obstruction based on the six "S's": Suction, Saline, Sanguine, Surgery, Sulfa and the "Stir'em" technic.

Suction, or gastro-intestinal siphonage, has done much to lower the mortality of this condition. It has its pitfalls, however, and these must be kept in mind. It has no place in large bowel obstructions nor should it be used when strangulation is present. On the other hand, it may be curative in postoperative ileus, non-strangulated adhesive obstruction, or in obstruction associated with peritonitis; these are usually small bowel lesions. Its value as a pre- or postoperative adjunct needs no emphasis. To keep a patient with a carcinoma of the rectosigmoid and a large bowel intestinal obstruction on continuous siphonage is to court disaster.

Saline, an excellent form of supportive therapy, can prolong the life of a patient with an intestinal obstruction, however, it cannot cure the condition. Chloride ions have been lost in the patient who has manifested a great deal of vomiting or in whom continuous gastro-intestinal siphonage has been instituted. These must be replaced, and it is mainly by the use of physiological saline that the patient's chloride balance may be maintained. By restoring this electrolyte balance one is able to put his patient into better condition to withstand surgery, and in this way also to lower the mortality. Saline, however, is not the only supportive therapy that the patient needs; this will be discussed subsequently.

Sanguine is used to refer to blood and its derivatives. We feel that the only place for the use of whole blood is in the replacement of lost red cells. We prefer to

keep the protein balance for the patient's normal supply of plasma, serum or amino acid therapy. If the obstruction is associated with blood loss, we feel that the fluid of choice is then whole blood. In many cases of strangulated obstructions, or in cases which might necessitate extensive bowel resection, whole blood is preferred. Maintaining a normal protein level permits

a patient to properly heal because of his good fibrin content. Hypoproteinemia and hyperchloridemia are two conditions which must be avoided in the case of intestinal obstruction as well as in all other surgical emergencies. Too little protein and too much chloride both produce tissue edema and permit the patient to "drown" in his own body juices. It is because of hypo-

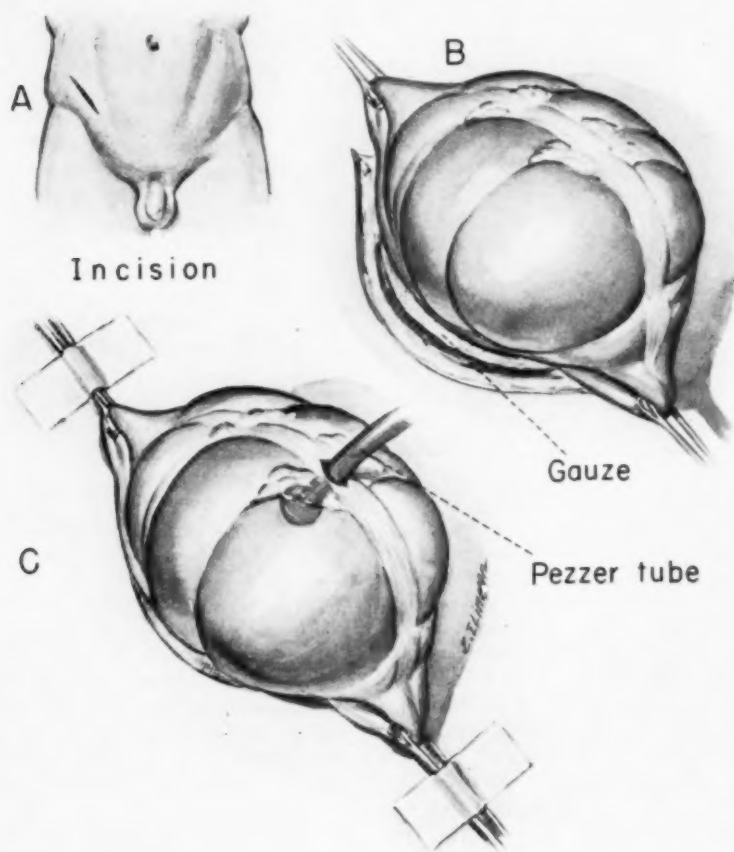


Fig. 1. Blind Cecostomy

- (A). The incision hugs the right anterior superior iliac spine.
- (B). The distended cecum is exteriorized with gauze and maintained in position by two non-crushing forceps.
- (C). Placement of a Pezzer catheter in the cecum completes the procedure.

proteinemia and hyperchloridemia that sutures pull out of edematous tissue. Faulty suturing material is not the cause of intestinal leakage; that is due to poor pre- and postoperative care. The patient's vitamin needs must be maintained, especially the water soluble vitamins B and C which he loses readily. Vitamin C is truly the surgeon's vitamin because this is the one which is essential to sound wound healing. If a patient has a strangulation he should have immediate surgery. As has been stated, the patient will tell us where to make the incision if we just permit him to reveal his most tender spot. Complete large bowel, non-strangulated lesions require immediate colostomy for the release of intracolonic pressure. We prefer the so-called "blind" cecostomy in such conditions. This is made through an exaggerated McBurney's incision which hugs the anterior superior iliac spine. If the cecum is distended, and it surely should be in an obstructed colon, then it bulges into the wound. It is held in place by two hemostats, and an iodoform pack is placed between the cecum and the parietal peritoneum. Following this stitchless procedure, the patient is returned to bed and the cecum is opened some six hours later after it has had a chance to seal off. Since the bowel wall is edematous and will not retain sutures it is unwise to directly attack an obstructed colonic lesion. It is for this reason that we leave the primary pathology alone and do a preliminary cecostomy away from the site of the lesion. For the following ten days or two weeks the patient may be deflated, prepared and then re-operated. It is at this time that a true evaluation of the pathology can be made and a resection done. The cecostomy acts as a vent in the event that an intestinal anastomosis is performed. In strangulated lesions we may be confronted with the question: "Is the bowel which has been freed viable or not?" It seems impractical to stand about placing hot towels on a segment of intestine and

watch its color. Viability is readily determined if one merely flicks the bowel with the finger and watches for peristaltic waves. If it is able to contract, regardless of the color of the intestine, it is viable. Intestinal obstruction is usually associated with a transudate which is present in the peritoneal cavity; if this is bloody a strangulation is present. Therefore, if a blind cecostomy is done and a sanguineous fluid noted, we must abandon the cecostomy and explore for the presence of a strangulated lesion. The type of anastomosis performed is purely a personal one, however, we feel that a lateral anastomosis is the safest in the hands of the occasional operator. If time is a factor, one should be familiar with the technic of the so-called quick "aseptic" end to end anastomosis.

Sulfa drugs have taken their place among the chemotherapeutic agents used in the treatment of intestinal obstruction. There is also a place for such allied drugs as penicillin and streptomycin. Following the surgery, we place 3 to 4 grams of sulfathiazole or sulfadiazine in the peritoneal cavity and follow this with 400,000 units of penicillin every 3 or 4 hours intramuscularly. We do know that penicillin will not affect the colon group of organisms but it will attack streptococci and staphylococci. Sulfadiazine is administered intravenously following the first postoperative day and streptomycin is coming into its own as the main chemotherapeutic agent against the gram-negative rods. Sulfasuxidine and sulfathalidine will keep the bacterial count low in the intestinal tract if those drugs can be taken by mouth.

By "*stir'em*" technic we mean early ambulation, active and passive movements and breathing exercises. The beneficial effects brought about by getting patients out of bed as soon as possible have been well proven. We do not wish to infer that early ambulation should be carried to an extreme. It is our plan to have our major surgical cases out of bed on the first postoperative day, however, each case presents

an individual problem. Having the patient move about, having him take a few deep breaths every hour, and encouraging arm and leg movements all play their part in lowering the incidence of phlebothrombosis, pulmonary complications and their sequelae.

In this discussion of the subject of in-

testinal obstruction, only the highlights have been mentioned, however, we feel that if we approach the problem with the "Four Questions," make a diagnosis based upon these, and then summarize the treatment with our "Six S's," we should have a logical approach to a given case.

25 East Washington Street



Parents Must Condition Child Emotionally for Operation

Preparation of a child for surgery must begin in the home by the provision of an environment of love, trust and security if the child is to survive the operation without suffering emotional injury.

This conclusion was expressed in an article in the *Journal of the American Medical Association* written by Katherine Jackson, M.D.; Ruth Winkley, A.B.; Otto A. Faust, M.D., and Ethel G. Cermak, M.D., all of Albany, N. Y. Drs. Jackson, Faust and Cermak are associated with the departments of pediatrics and anesthesiology, Albany Medical College.

"Our experience has shown that the child best able to meet the hospital-anesthesia-surgery situation is the child who is able to trust the physicians and nurses to treat him fairly," the authors stated. "He assumes that painful procedures are necessary, are for his own good, and are not punitive.

"He is willing, therefore, to place himself in the hands of others and expects from them the kindness, understanding and support to which he is accustomed at home. He is not overwhelmed by his own fear, because he is able to trust someone else who is unafraid.

"Obviously, such a child must have a firm foundation of trust in his parents, a deep assurance that they are always fair and always consistent in their love. He has already learned that a certain

amount of unpleasantness and deprivation are unavoidable in life and that they are not in any way punishment for misbehavior. In the hospital, he expects some unpleasantness and pain and accepts the situation without resentment."

According to the article, there are three important determining factors in the prevention of emotional trauma in the hospital-anesthesia-surgery experience of a child: (1) The child must have made a reasonably adequate adjustment to his environment; (2) he must have proper preparation for the specific experience, and (3) the experience must be modified to meet his individual endurance.

"The parents should explain honestly and simply what is going to happen and why," it was added. "The child's questions should be answered patiently and reassuringly.

The time of admission to the hospital for elective procedures should be determined with regard to the child's emotional state. Shortly before admission in the hospital, either the family physician or the surgeon should tell the child what is going to be done.

However, no amount of love and understanding by outsiders will substitute for the child's mother. Because the child's emotional welfare is bound up with his physical welfare, provisions should be made for a parent to remain with the hospitalized child both before and after the operation.

Clinico-Pathological Conference

New York University-Bellevue Medical Center Post
Graduate Medical School, Department of Medicine at
Bellevue Hospital, Fourth Medical (N. Y. U.) Division

Patient H. S.

This 55-year-old colored male was admitted to the 4th Division Urology Service on 4/7/51 complaining of bloody urination.

The patient had had urgency, frequency, nocturia (3-5x), and dribbling plus urinary incontinence for approximately five years. Two years prior to admission he had an attack of right flank pain, hematuria, chills and fever. He was relatively well after that until one day prior to admission, when he began to pass grossly bloody urine (with clots) accompanied by straining, hesitancy and dysuria.

He denied weight loss, night sweats and hemoptysis; there had been a chronic cough for years productive of white sputum. Anorexia, nausea, vomiting and abdominal or flank pain were denied. The patient lost the sight of his left eye from an accident at the age of 14 years. He had gonorrhea when he was 30 years old. His father died of cancer of the stomach.

Physical Examination P. 80, T. 99.4, B.P. 150/92. The patient was a well-developed, well-nourished, middle-aged, colored male, who was alert, cooperative and in no acute distress. There was a corneal opacity in the left eye and a few shotty lymph nodes in the left anterior triangle of the neck. The thyroid was not enlarged and

the trachea was in the mid-line. The lungs revealed a few basilar rales bilaterally that did not clear with coughing. The heart was not enlarged; the PMI was in the 5th ICS in the MCL. R.S.R. No thrills or murmurs were present and A2 was greater than P2. The abdomen was soft and a sharp liver edge was felt 3 fb. below the RCM. The spleen and kidneys were not palpable. No other masses were felt. The genitalia were those of a normal, uncircumcised male. The prostate was 2x enlarged, firm, nodular and fixed, with induration involving the area of the seminal vesicles. There was no clubbing or edema of the extremities, and the neurological findings were normal.

Course in the Hospital His urine was found to be grossly bloody. An indwelling Foley catheter was employed and a residual of 10 cc. noted. On 4/13/51 a cystoscopy was performed: "Small bladder with trabeculations. Left orifice normal. Right orifice edematous and red. Prostate not visualized adequately, but seems intra-urethral. Cystogram—numerous large prostatic calculi. Small trabeculated bladder with reflux up the right ureter. There seems to be a calculus in the left kidney with calcification over the lower pole of the right kidney." On 4/25/51 a retrograde

Laboratory Data

| Urine | | | | | | | |
|-------------|----------------|-------|------|---------|---------|--------------|--------------------|
| Date | Character | S.G. | Alb. | Sug. | RBC | WBC | Other |
| 4/8/51 | grossly bloody | | | | | | |
| 4/22/51 | clear | 1.010 | 0 | 0 | | loaded | |
| 5/6/51 | cloudy | ONS | 0 | trace | | | packed with debris |
| Blood | | | | | | | |
| Date | WBC | Hgb. | | | | | |
| 4/7/51 | 8,000 | 11.0 | | | | | |
| Chemistries | | | | | | | |
| Date | NPN | Sug. | CO2 | A/G | Cl | Acid Phosph. | Alk. Phosph. |
| 4/9/51 | 36 | 83 | | | | 3.0 | 6.3 |
| 5/7/51 | 102 | | 40.4 | | 95 meqL | | |
| 5/9/51 | 104 | | | | | | |
| 5/14/51 | 66 | | 35.2 | | 94 meqL | | |
| 5/21/51 | 47 | | | 2.6/2.6 | | | |

Serology: 4/9/51 Mazz. 4+—Wass. negative

4/18/51 Mazz. 4+—Wass. negative

pyelography was done: "Flat plate KUB reveals moderately advanced osteoarthritis of the lumbar spine. Soft tissue shadows appear normal. Both kidney shadows are seen and appear normal. In the region of the lower pole of the right kidney there are two calcific densities. There is also a calcific density in the lower pole of the left kidney and one in the mid-portion. An opaque catheter is seen within each ureter. Retrograde pyelograms delineate essentially normal urinary tracts. There is rotation of the left kidney. The previously mentioned calcific deposits in the region of the prostate are still present."

On 5/5/51, the patient spiked a fever to 105° and became comatose. His pulse rate was 130, respirations 28 and the neck rigid. On 5/5/51 a spinal tap was performed and streptomycin 0.5 gm. (t.i.d. for 4 days, then q. 3 h) and penicillin 100,000 U. q. 3 h. were started. Within 48 hours the patient was afebrile and remained so the rest of his course. On 5/13/51 P:A.S. was started. By 5/15/51 the patient was responding to questions (though poorly), and noted to have no nuchal rigidity. Most of his nourishment was derived from I.V. feedings until 5/20/51, when tube feedings

were employed instead. His sensorium continued to be clouded and he again no longer responded to questioning on 5/20/51. He sank deeper into coma and expired on 5/23/51. The urinary output remained adequate throughout.

5/14/51 Blood culture—no growth.

4/13/51 24 hour urine—culture neg. for A.F.B.

4/25/51 Urine right kidney—culture neg. for A.F.B. Urine left kidney—culture neg. for A.F.B.

5/7/51 Spinal fluid—culture neg. for A.F.B.

5/7/51 E.K.G.—No significant changes.

X-Rays

4/10/51 No evidence of metastases in the femur, pelvis, chest, thoracolumbar spine, humeri or skull.—Extensive hypertrophic osteoarthritic changes thoracolumbar spine with some bridging of the lumbar vertebra.

4/17/51 I.V.P.: Kidneys normal in size, shape and position—several calcareous deposits present which appear to be external to the urinary system. Intravenous urography reveals no apparent abnormality of the urinary tract on the left side. On

the right side, the renal pelvis is not satisfactorily outlined—The calyces appear to

be dilated on this side and the outer digitations are lost.

Case presented from the wards of the Fourth Medical Division, Bellevue Hospital, Dr. Charles Wilkinson, Dir.

Write your own clinical impression or formulation here, if you wish.

Autopsy findings and pathology will be found on page 786.

Patient N. R.

1st Admission—11/15/50 This 73-year-old white male was admitted to the surgical service on 11/15/50 complaining of pain in the right shoulder and arm of 6 weeks duration. While lifting a 30 lb. object 6 weeks prior to admission he experienced moderately severe pain in the right upper arm, necessitating his dropping the object. The pain was of an aching nature and radiated from the shoulder to the elbow. Two weeks prior to admission he noted a mass in his right upper arm which gradually increased in size. X-rays taken by his LMD revealed a "crack" and the patient was admitted because of a pathological fracture. During this 6 weeks period he noted anorexia, easy fatigability and a 5-6 lb. weight loss.

The past history was negative except for one episode of "fainting" four years prior to admission while taking an enema. His local physician told him he had an intestinal hemorrhage and kept him in bed for 10 days. He had no G.I. complaints of any sort for 2-3 years before admission—no pain, melena, nausea, vomiting or constipation.

Physical Examination T. 100°, P. 88, B.P. 160/90, R. 20. The patient was a pale, elderly, white male, who did not appear to be in any distress, but who moved and held his right arm with great caution. There was a large, oval shaped, non-fixed, firm, discrete, 3x2 cms. node in the right axilla. The chest was clear to percussion and auscultation and the heart was apparently nor-

mal. The liver edge was felt one f.b. below the right costal margin and was smooth and non-tender. On the upper third of the right humerus there was a bony-hard, tender, irregular mass. It was swollen but not hot and movement of the arm was normal, but painful. The thyroid and prostate glands were not remarkable on physical examination.

Course in the Hospital A barrage of x-rays and other diagnostic procedures followed and the patient was started on a course of x-ray (to the humerus and urethane on 12/6/50. On 12/21/50 the patient had received a total of 59 grams of urethane and subjectively was improved—less pain and also less swelling. He was afebrile throughout his course except from 11/24/50-11/28/50 when he ran fever from 101° to 104°. On 12/22/50 the patient was discharged to be followed in the clinic and to be maintained on 1 gram of urethane daily and liver injections periodically.

11/26/50 *Aspiration biopsy* of right humerus.

11/28/50 *Esophagoscopy* and *Bronchoscopy*—negative.

Cystoscopy (11/20/50), *I. V. Pyelogram* (11/21/50) and *retrograde pyelogram* (11/22/50) showed no evidence of primary tumor of the G.U. tract. The base of the bladder was slightly elevated suggesting prostatic hypertrophy and a right nephrop-tosis was present.

11/20/50 *Chest X-Ray*: Heart and aorta normal. No infiltration or consolidation of

either lung.

11/20/50 Skeletal X-Rays: There are no metastatic areas in the skull, long bones, spine or pelvis. The right humerus reveals an osteolytic process with a pathological fracture. There are also some osteoplastic changes.

12/1/50 G.I. Series: There is evidence of a deformity of the first portion of the duodenum associated with considerable irritability and spasm of the pyloric antrum, possibly on the basis of an associated antrum gastritis.

2nd Admission 6/21/51 The patient again entered on the surgical service. What happened to him since discharge was quite vague, though his wife stated that he continued to take his liver injections. He became progressively weaker and anorexic and the pain in his right humerus in-

creased. Two days prior to admission he slipped out of bed and couldn't get up. He was brought to Bellevue in a terminal state.

Physical Examination T. 98, P. 72, R. 18, B.P. 100/40. The patient appeared terminal—dehydrated, pale and incoherent. There were rales at both lung bases. The abdomen was flat and the liver not felt. No other masses were palpated. There was a bony-hard swelling of the upper humeral neck, and a movable, soft, egg-sized mass overlying the upper humerus, another on the lower pectoralis major fold in the right axilla and a third over the right anterior chest wall. Pitting edema of both feet was present.

Course in Hospital The patient went rapidly downhill and died on 6/23/51, the 3rd hospital day.

Laboratory Data

| Urine | | | | | | | | |
|-------------------|-----------------------------------|------------|--------------|------------------------|--------|-------|------|------|
| Date | Color | React. | S.G. | Alb. | Gluc. | Acet. | RBC | WBC |
| 11/15/50 | yellow | Acid. | 1.018 | 0 | 0 | 0 | 0 | occ. |
| 12/1/50 | Negative for Bence-Jones protein. | | | | | | | |
| 11/29/50 | Negative Papanicolaou smear. | | | | | | | |
| Blood | | | | Differential | | | | |
| Date | Hb. | RBC | WBC | Polys | Lymphs | Mon. | Eos. | |
| 11/15/50 | 12.5 | | 10,000 | 75 | 18 | 6 | 1 | |
| 12/7/50 | 10.0 | 2.30 | | | | | | |
| 12/11/50 | 10.0 | | 6,300 | 75 | 24 | 1 | — | |
| Blood Chemistries | | | | | | | | |
| Date | A/G. | Alk. Phos. | Acid Phosph. | Ceph. Floc. | | | | |
| 11/21/50 | 3.5/4.85 | 2.8 | 0.4 | | | | | |
| 12/1/50 | 3.3/5.03 | | 2.7 | | | | | |
| 12/4/50 | | | | neg. 24 hrs— 1+ 48 hrs | | | | |
| Urine | | | | | | | | |
| Date | Color | React. | S.G. | Alb. | Gluc. | Acet. | RBC | WBC |
| 6/21/51 | yellow | Acid. | 1.025 | 4+ | 0 | 0 | 0 | 0 |

Blood—6/21/51 Hgb. 4.0 grams.

Case presented from the wards of the Fourth Medical Division, Bellevue Hospital, Dr. Charles Wilkinson, Dir.

Write your own clinical impression or formulation here, if you wish.

Autopsy findings and pathology will be found on page 786.

Vaginal Bleeding At the Menopause

EDWARD N. CARTNICK, M.D.
Garden City, N. Y.

Irregular vaginal bleeding in the menopausal years is a common occurrence, and a symptom which not only worries the patient, but often confuses the physician. This bleeding can be due to the failing response of an ovary nearing the end of its functional years, or it may be a symptom of serious disease. Brewer states that 5 to 17% of women with abnormal bleeding during the climacteric have malignancy of the genitalia. The burden of proof lies on the physician whom the patient consults to prove that an episode is of benign etiology. It is his duty to treat adequately or to guide to adequate treatment each of these patients. The purpose of this paper is to outline available modern methods of diagnosis and treatment of this type of bleeding.

Menopause has been best defined by Curtis as the period intervening between the initial decrease of ovarian function, and the establishment of a new equilibrium. The average menopausal age for healthy American women is between 45 to 47 years, although it may occur as early as 35 or as late as 50 or more. The establishment of the new equilibrium requires from 6 months to 3 years or longer. During this period the ovary gradually loses its responses to pituitary stimulation until the menses stop completely. Recent work indicates that ovarian hormone may be secreted for some time after the menses stop, so that in itself amenorrhea does not indicate complete cessation of ovarian ac-

tivity. Extensive atrophy of the genitalia is seldom seen until many years after the menopause.

The menses may stop abruptly, but usually there is some irregularity, varying from frequent excessive flow to scanty flow at wide intervals. Just as in the menarche, before ovulation becomes definitely established as a monthly event, the menses are irregular in time and amount of flow, so it is at the end of menstrual life when again regularity of ovulation is interrupted. The pituitary continues to send out its stimulating gonadotropin, but this finds an end organ which can no longer respond. Without the suppression effect of ovarian hormone the pituitary continues to pour out gonadotropin, which may play a large part in that collection of symptoms called the menopausal syndrome. Be that as it may, the endometrium responds in various ways to this change in hormonal stimulation. It is unfortunate that some excess in flow occurs sufficiently often to be a part of the normal picture of the menopause.

The picture of the menopause is often confused, too, by therapy of the so-called menopausal syndrome, which has been found to respond to estrogens. These exogenous estrogens, just like the endogenous, stimulate the endometrium, and may superimpose their effect on the normal involutional changes to further confuse the clinical picture. Hardly a day goes by that the gynecologist is not con-

fronted with a bleeding episode which is ultimately traced down to the withdrawal bleeding due to estrogen administration.

To differentiate the more or less normal menopausal bleeding episode from the pathological may not be too easy. We fall back on the most important media of diagnosis, a careful, painstaking history; physical examination; and laboratory procedures.

In Differential Diagnosis of bleeding in this age group we must consider the following conditions:

1. Pregnancy and its Complications:

One is apt to forget that pregnancy in the forties is not uncommon. Amenorrhea and hot flashes are frequent concomitants of normal pregnancy. Threatening abortions, incomplete abortions, moles, ectopic pregnancies may all cause unusual bleeding.

2. Endometrial Hyperplasia: This is due to prolonged unopposed estrogen stimulation as occurs when ovulation fails and is a not unusual development during the menopause. We know now that bleeding can occur from any type of endometrium—even one that is atrophic, but bleeding associated with a hyperplastic endometrium is a common menopausal finding.

3. Cervical and Endometrial Polyps: These are most frequent after the age of 40 and produce irregular bleeding and profuse menorrhagia.

4. Fibromyomas—especially of the submucous type: These tend to produce more profuse and prolonged flow, with a shorter intermenstrual interval.

5. Functioning Ovarian Tumors—such as the granulosa cell and theca cell tumors whose production of estrogens affects the endometrium: These may occur at any age, but usually occur after mid-life.

6 Vascular Changes in the Uterus: Arteriosclerosis of uterine vessels is a not unusual finding, especially in multigravidae

and in diabetics. Rupture of one of these vessels may cause severe hemorrhage. Diagnosis is difficult, and usually by exclusion.

7. Inflammatory conditions, endometritis, etc., are rare, but may occur.

8. Erosions of the Cervix: Erosions which produce bleeding after trauma, such as coitus, douching, insertion of a diaphragm, etc., may produce unusual menopausal bleeding.

9. Withdrawal bleeding after the use of estrogens has been discussed.

10. Carcinoma is one of the most important causes of bleeding at the menopause. Carcinoma of the fundus characteristically occurs late in life; occurs most frequently in obese nulliparous females and in association with fibroids in about 30%. Bleeding is an early symptom of this carcinoma.

Carcinoma of the cervix occurs in younger women, and is often widespread by the time bleeding occurs.

11. Other causes of bleeding include systemic disease, endocrine disorders, especially thyroid, blood dyscrasias, vitamin and mineral deficiencies, etc.

A careful history will elicit time intervals of the bleeding, the relationship to trauma, the amount of blood loss, association to vasomotor phenomena of the menopausal syndrome, etc. A "Pap" smear is strongly recommended as a routine part of the initial examination. This routine, plus a painstaking pelvic examination, including speculum study of the cervix, will go far to bring the physician to the correct diagnosis.

If the patient has been on estrogens, and all other phases of the examination are normal, the patient should be observed for three weeks with the estrogens eliminated. If the bleeding persists beyond this interval an organic cause of the bleeding should be sought.

Cervical Biopsy of suspicious cervixes is a simple office procedure. A bite in each of the four quadrants is recom-

Read before the Associated Physicians of Long Island at Nassau Hospital, Mineola, N. Y., June 4, 1952.

mended. The Schiller test, using iodine solution to stain the cervix and biopsy of the areas not taking the stain, may aid in the early diagnosis of malignancy.

Bleeding and clotting times, blood counts and the basal metabolism test are all helpful to rule out the dyscrasias as a cause of the bleeding.

Curettement is recommended not only as a diagnostic procedure, but therapeutic as well. Functional bleeding is relieved in one-third of the cases by a D & C; two-thirds will need further treatment. An endometrial or cervical polyp may be easily removed at the time of curettage.

Treatment of Bleeding at the Menopause May be divided into:

1. Medical
2. Radiation
3. Surgery

Medical If the pelvic examination is normal, there is no history of bloody intermenstrual discharge, and the "Pap" smear is negative, a case may be observed safely for two or three months, during which time expectant treatment, in the form of ergot, iron, estrogenic or androgenic hormones, may be used.

Expectant treatment should not be carried out when menorrhagia is associated with intermenstrual staining or bleeding, or a pelvic lesion is demonstrable.

If hormonal therapy is elected, androgenic hormone, not to exceed 200 mgm. monthly of testosterone, is preferable to estrogens to obviate withdrawal bleeding and stimulation of the endometrium. Re-

cently Greenblatt and his associates have advocated combined androgen-estrogen therapy both for suppression of bleeding and treatment of the menopausal syndrome.

If estrogens are elected, one must bear in mind the possibility of carcinogenic activity. For short term usage this possibility can be discounted, but estrogens should not be prescribed for long term periods.

Radiation therapy for benign bleeding in the menopausal years has few advocates at present, unless the medical condition of the patient precludes surgical therapy. The frequent occurrences of malignancy in later years in patients treated for benign bleeding by radiation has discouraged most gynecologists from its use. Radiation finds its chief use in the treatment of malignant lesions, such as carcinoma of the cervix or fundus.

Fundal carcinoma is treated by pan-hysterectomy and extirpation of the adnexa about six weeks post-radiation. Results of the surgical treatment of carcinoma of the cervix as recently practiced by Meigs and his associates do not warrant its use in preference to radiation.

Surgical Patients with fibroids and bleeding are usually treated by hysterectomy. If bleeding is associated with pelvic relaxation, a vaginal hysterectomy together with pelvic repair is the treatment of choice. Ovarian tumors are best treated by surgical excision.

Summary

In summary, then, if the pelvic examination shows no demonstrable pathology and the "Pap" smears are negative, observation and expectant treatment are justified in the case of profuse menorrhagia. Expectant treatment should not be carried out when the menorrhagia is associated with intermenstrual bleeding

or a pelvic lesion. A delayed menopause shows unusual ovarian activity and is thought to increase susceptibility to cancer. In these cases estrogenic treatment is contraindicated. The definitive therapy of demonstrable pathology is based on the broad principles discussed.

Pathological Findings

Patient H.S.

Case presented on page 779

At necropsy, widespread *miliary*, *hematogenous tuberculosis* was found, with involvement of lungs, liver, spleen and lymph nodes. Permission was not obtained for examination of the central nervous system, so that it was not possible to confirm anatomically the clinical diagnosis of *tuberculous meningitis*. Many of the tubercles appeared to be undergoing regression: advanced fibrosis with formation of lipid vacuoles in the center of the granulomata. These changes, presumably, resulted from the treatment with streptomycin and para-aminosalicylic acid.

The tuberculosis appeared to be well established in the prostate. To what extent its scarification was due to tuberculosis cannot be ascertained. Stones were present; the history of gonorrhea some 30 years ago and symptoms of "prostatism" of 5 years duration suggest the possibility of non-specific chronic prostatitis, independently of, or perhaps background for the development of tuberculosis of the prostate. On the other hand, it is recognized that *tuberculosis of the prostate* is not infrequently an isolated and prominent lesion in the genito-urinary system

(1); and, as in the present instance, often terminates in generalized, *miliary tuberculosis*.

There was no tuberculous involvement of the kidneys. Mild acute and chronic pyelonephritic changes were present. Independent of these were regenerative changes in the renal tubules; this is interpreted as evidence of recovery from a *nephrosis, type unclassified*. In view of the recent episode of azotemia associated with the heavy dosage of streptomycin, it appears possible that this represents a nephrosis caused by streptomycin (2).

In the left lower lobe, there was a small (0.6 cm. diameter) stellate scar surrounding a cavitary space, lined with bronchial epithelium. This may represent a localized area of bronchiectasis, or bronchial deformity secondary to healed tuberculosis. Caseation necrosis and hyalinization was associated with tuberculous adenitis of the para-aortic and axillary lymph nodes.

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Patient N. R.

Case presented on page 781

This case represents a rather unusual variant of *multiple myeloma* (1,2,3). The outstanding pathological feature is the massive involvement of soft tissues, liver, spleen, head of pancreas, periaxillary adipose tissue, kidney, thyroid, ileum and the lymph nodes everywhere. A somewhat similar case was presented here last year (Autopsy #37841, Dec. 6, 1950) and was

classified as plasma cell leukemia (4), largely because there was no formation of tumor masses in the bones. As in the present instance, there was no Bence-Jones nephrosis and the splenic sinuses were involved in the processes. Nevertheless we have (without too great conviction) preferred to classify the present lesion as multiple myeloma because 1) it forms overtly invasive masses in the viscera, 2) it does not involve the bone marrow uni-

formly, and 3) atypical cells were not known to be in the blood. These cases illustrate perhaps the analogous relationship of myeloma plasma cell leukemia to that of lymphosarcoma and chronic lymphatic leukemia.

In the thyroid gland multinucleated cells are seen in the invading tumor tissue. These bear considerable resemblance to megakaryocytes and may be a megakaryocytic variant of myeloma cell (5). Nevertheless the likelihood is that these

are reactive giant cells to colloid from damaged thyroid parenchyma.

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Cancer of Lung Now Most Common Form

Cancer of the lung has steadily increased in incidence until it is now the most common form of cancer, according to Drs. Louis H. Clerf and Peter A. Herbut, Philadelphia. The doctors are associated with the departments of laryngology and broncho-esophagology and pathology, Jefferson Medical College and Hospital.

During 1948, cancer of the lung caused more than 16,000 deaths in the United States. The treatment of such cancer, most prevalent in men between the ages of 40 and 70 years, depends upon early diagnosis and immediate institution of therapy, the doctors wrote in the recent *Journal of the American Medical Association*.

Lung cancer presents no characteristic clinical picture, the doctors pointed out. In its early stages, the disease may show no symptoms, and its onset may be so insidious that it may not be suspected by either the patient or his physician until the case is hopeless.

The most common first symptom of cancer of the lung is a cough, they stated. This cough is, in general, of an irritative character, may be troublesome at night, and is often nonproductive of sputum.

Blood in the sputum should never be disregarded, as it may be a sign of lung cancer, the doctors said. Other factors indicative of carcinoma of the lung include pain or discomfort in the chest region, shortness of breath, wheezing respiration, and abnormal chest shadows in x-rays. Although hoarseness, weakness and weight loss are not of themselves of any significance in detecting lung cancer, their presence should merit further investigation when they are observed in conjunction with the symptoms discussed above.

X-ray studies of the chest are unquestionably the most important single diagnostic aid in determining the presence of lung cancer, the doctors stated. If abnormal findings are present, a bronchoscopic examination should be given. This examination should encompass visualization of the bronchial tree, microscopic examination of the tumor, and collection of secretion for microscopic study.

Such secretions include sputum, spontaneously discharged bronchial secretions, and bronchial washings. The latter form of secretion is preferred by the doctors, who stated they were able to make positive diagnoses in 476 of 540 patients (88.3 per cent) as a result of such procedure.

Aseptic Treatment of Wounds

Wound healing depends upon a variety of factors, among which, in spite of antibiotics and chemotherapeutic agents, asepsis plays a major role. Asepsis in the office is the physician's responsibility and cannot be relegated entirely to office assistants, therefore the principles of the various methods of disinfection and sterilization should be known to him.

Recent advances in the knowledge of dissemination of virus diseases proved that some of the methods of disinfection, which were thought to be adequate, are in fact unsafe.

Asepsis in the office as in the operating room is accomplished by the combined use of chemical and physical destruction of the micro-organisms. Sterilization must be carried out as a standardized technique in which, to make it safe, every step has to be carried out exactly. To make the routine of the technique least burdensome each step has to be arranged to be most convenient and least time-consuming without sacrificing its efficiency.

Chemical Disinfection

(The U. S. Department of Agriculture does not permit the designation "sterile" as the end result of chemical action by a germicide.)

The use of germicides has an important place in the sterilization of all instruments with sharp cutting edges, which cannot be sterilized by any other method without destroying their edges. Germicides, however, have to be applied with the knowledge that their action upon spore forming bacteria is slow. (The most efficient will

take up to three hours to destroy some spores.)

Germicides act by contact, therefore the instruments have to be cleaned to make them free of all foreign matter before immersing them into the solution, otherwise germicidal action is prevented. The pH of the solutions has to be maintained and wet objects should not be placed into the solutions as they will dilute them and would cause corrosion of the instruments.

Disinfecting Solutions

Ethyl alcohol 70% by weight (Formula for preparing: Ethyl alcohol 815 cc.; aqua dest. ad 1000. Both liquids should be cold before mixing). For disinfection of skin.

Formaldehyde (Bard Parker Formaldehyde Germicide containing formaldehyde-isopropanol and chlorinated phenol). Kills spores within three hours. For disinfection of instruments only. Is not corrosive when properly used.

Sodium hypochlorite (Chlorox). For disinfection of floors, furniture and toilets. (1:1,000)

Quaternary ammonium salts (Benzyltrialkonium chloride, Zephiran) (Zephiran 12.8% concentrate, 8 cc.; aqua dest. ad 1,000). For disinfection of skin.

Chlorinated phenol (bis(2-hydroxy-3,5,6-trichlorophenyl)methane in combination with a detergent combination is known as pHisoHex). For cleansing and degerminating skin within 3½ minutes.

Disinfectants not recommended are time-honored solutions but having disadvantages outweighing their desired effect:

Iodine is a skin irritant which causes vesiculation and its fumes corrode instruments; mercurial compounds cause skin rash, discoloration of nails and kidney damage and are not dependable; phenols are unreliable, as they do not destroy spores.

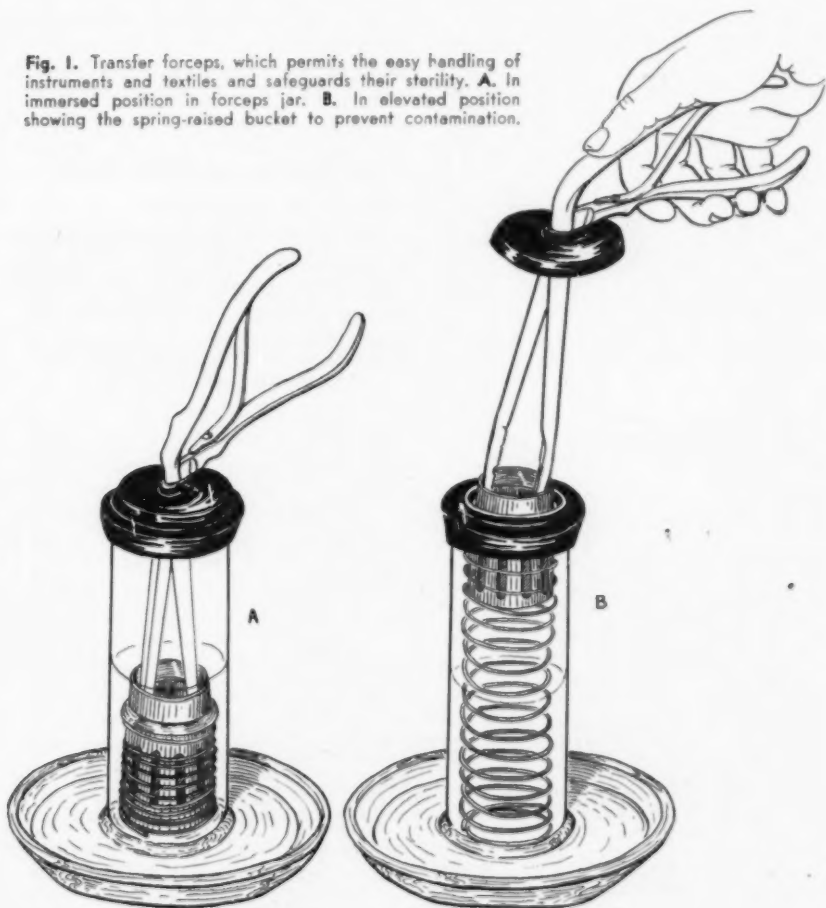
Technique of Chemical Disinfection

Disinfection of Instruments

Transfer forceps. The weakest link in

the sterilization of instruments is the transfer forceps. A safe and efficient transfer forceps should have the following qualities: a) It should grasp firmly all sizes of variously shaped instruments and textiles. b) It should permit the easy handling of instruments without contamination. c) The sterile jaws of the forceps should be separated from the unsterile handle by a rubber disc, which serves as a cover for the germicide jar to prevent evaporation of the germicide. d) It should

Fig. 1. Transfer forceps, which permits the easy handling of instruments and textiles and safeguards their sterility. **A.** In immersed position in forceps jar. **B.** In elevated position showing the spring-raised bucket to prevent contamination.



be immersed in a container having a fenestrated bucket which rises above the unsterile edge of the germicide jar to prevent contamination each time the forceps is lifted out. Fig. 1.

Instruments with cutting edges. The disinfection of all types of instruments with sharp cutting edges is most conveniently done in a flat container equipped with a fenestrated tray and a cover having a rubber gasket, which prevents the escape of fumes and the evaporation of the solution from the sterilizer. It must be borne in mind that identical germicidal solutions must be used in the transfer forceps jar and in the instrument sterilizer, as otherwise the diverse solutions when mixed will cause a chemical reaction which might destroy their efficacy and might cause corrosion of the instruments. Fig. 2.

Optical instruments. No general rule can be given for these instruments as the various optical systems might be damaged by different germicides. For disinfection of them the manufacturers' recommendations should be followed.

Brushes. Brushes should be immersed

in flat glass dishes. Fig. 3.

Furniture and floors. Contaminated surfaces of furniture and floor should be washed with sodium hypochlorite (1:1,000) to which soap suds have been added.

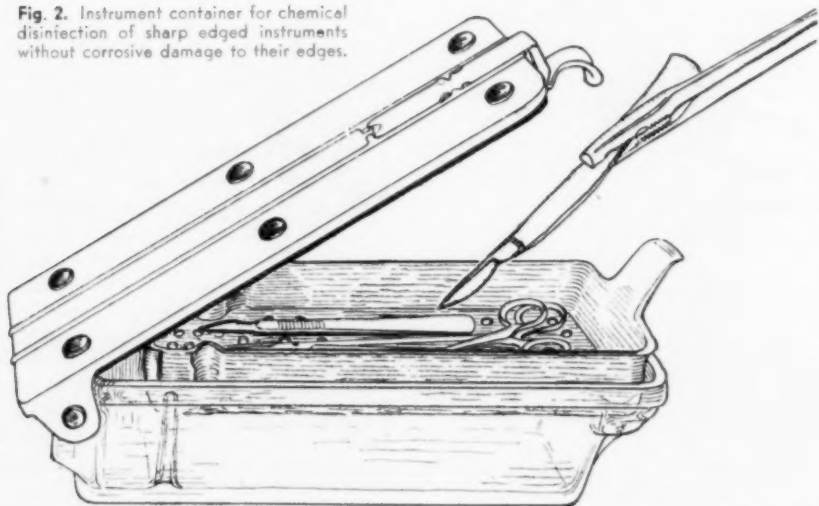
Physical Destruction of Micro-Organisms. Sterilization

The physical destruction of bacteria is accomplished by heat. Sterilization requires: a) the exposure of micro-organisms to a temperature which must be sufficiently high b) for a period of time which is sufficiently long to destroy the micro-organisms c) in a given atmosphere of known moisture, as the lethal time of exposure and degree of heat varies according to the amount of moisture.

Sterilization by Boiling Water (Non-pressure Sterilization)

The efficiency of sterilization by boiling water cannot be controlled due to the physical fact that the boiling temperature of water depends on the atmospheric pressure. This fact makes it impossible to

Fig. 2. Instrument container for chemical disinfection of sharp edged instruments without corrosive damage to their edges.



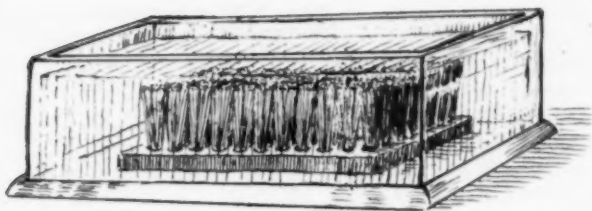


Fig. 3. Glass dish containing fluid for disinfection of brushes.

increase the heat for sterilization. The dry heat at which water boils is too low to destroy a variety of germs, therefore all surfaces of the object which is to be sterilized must come in contact with the boiling water. At sea level a 15 minute exposure to boiling water containing 2% sodium carbonate will destroy vegetative organisms. Many spores and viruses cannot be destroyed by boiling water. Sterilization with boiling water does not give adequate protection and virus infection of patients and physicians has been traced to utensils "sterilized" by boiling. This type of sterilization should be resorted to only if no autoclave is available.

Sterilization with Saturated Steam Under Pressure. Autoclaving

Steam can be heated in a closed chamber to any desired temperature independently of atmospheric pressure. The household pressure cooker is one type of device in which this can be accomplished. A pressure cooker can be used for sterilization of instruments if it is equipped with a gauge. It would need, however, constant attention. This device would not be suitable for sterilization of textiles as the contents are too damp after sterilization. A device designed for sterilization of instruments, textiles and other items in the office is based on the same principle.

Pressure or autoclave sterilization is not only one of the most reliable methods of destroying pathogenic micro-organisms but it is much more convenient to use and has an applicability to a wider range of materials than any other method. Since auto-

claving is the safest and most versatile method of sterilization every practitioner should be familiar with its underlying principles.

Under the term saturated steam we understand the physical state in which the steam exerts the maximum pressure possible for it at the given temperature. Saturated steam creates such a condition in the sterilizing chamber that the steam lies on the boundary line between liquid and vapor phase. Since each temperature has a characteristic saturated steam pressure the microcidal properties of the saturated steam can be determined readily by reading the temperature and pressure gauge. Fig. 4.

Steam penetrates textiles because its

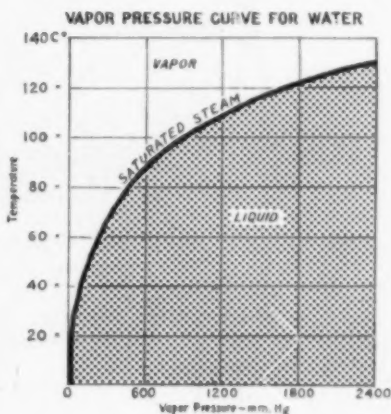


Fig. 4. Curve showing saturated steam pressure according to C. H. Peabody; Tables of properties of steam.

density is less than that of air and due to the fact that in the sterilizer chamber it constantly strikes cold objects, it consequently instantly condenses to water with a tremendous shrinkage of volume, which creates a negative pressure and suction surrounding steam. The objects removed from a properly constructed and properly operated autoclave are, however, dry, due to the fact that the steam is vented before removing the contents of the sterilizer. The sudden drop from chamber pressure to atmospheric pressure forces all condensate to vaporize until all moisture is evaporated.

The most universally used temperature for autoclaving is 121° C with 15 lb. pressure. This destroys dry spores in 13 minutes without injury to rubber. Higher temperatures (132° C for 2 minutes) should be used for emergency sterilization only.

Factors Influencing Adversely the Efficiency of Autoclave Sterilization

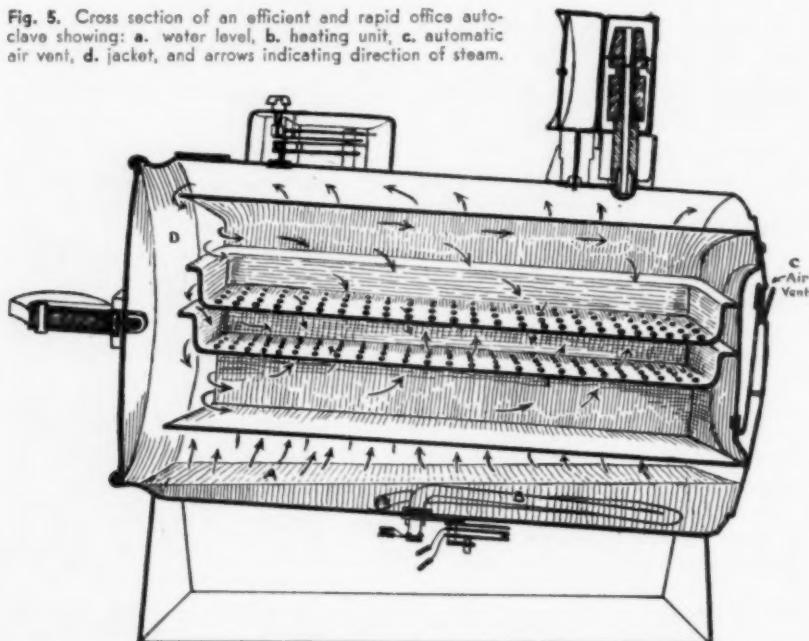
Superheated Steam

This condition occurs in office autoclaves if there is insufficient water in the sterilizer to retain some water in liquid state at the temperature the autoclave is used and the steam temperature increases above that characteristic of steam at the phase boundary between steam and liquid water. Superheated steam loses the ability of saturated steam to change instantaneously to the liquid state when it strikes cold objects, hence it acts like hot air and its efficacy for sterilization is only that of hot air. Superheated steam causes charring of textiles and thereby shortens their time period of usefulness.

Tapped Air

Air retained in the sterilizer chamber

Fig. 5. Cross section of an efficient and rapid office autoclave showing: a. water level, b. heating unit, c. automatic air vent, d. jacket, and arrows indicating direction of steam.



reduces the microbicidal power of steam, because a) air-steam mixtures have a lower temperature at the same pressure than saturated steam, b) the thermal capacity of air is much lower than that of steam, c) air reduces the penetrating power of steam into the depth of bundles and prevents contact between steam and micro-organisms.

Air becomes trapped in the chamber by an improper air ejector device or by faulty packing and improper loading of the object in the autoclave.

Improperly Cleaned Instruments

Oil and grease clinging to instruments

prevent access of steam to the dirty part, therefore only the less efficient dry heat acts on the oil covered parts.

The Technique of Autoclaving

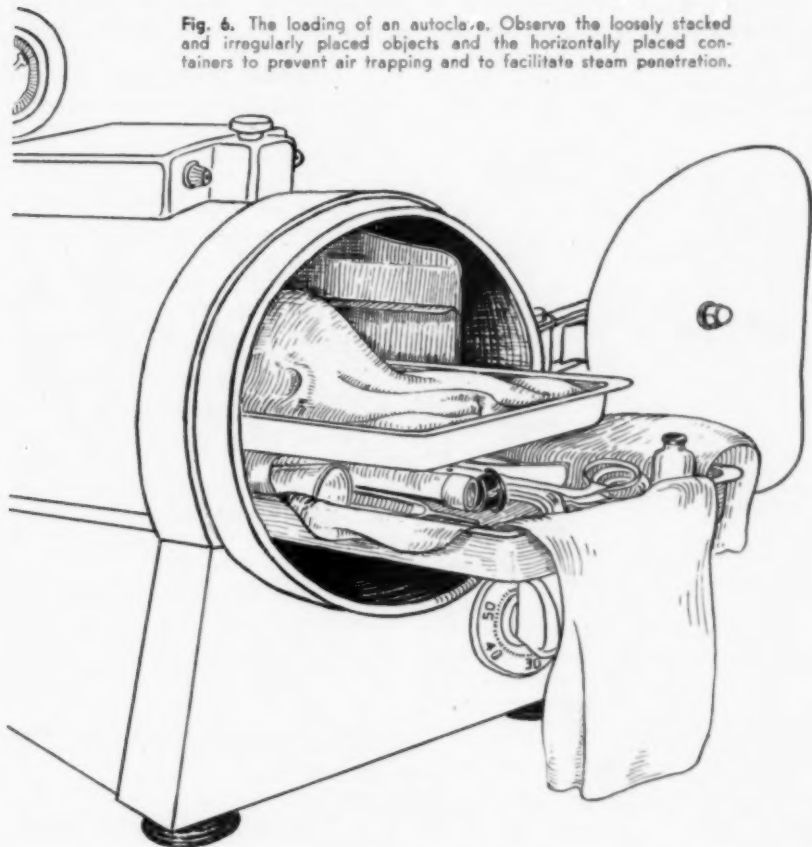
In the office sterilization with a high speed fully automatic autoclave (Speed Clave) is preferable, because it is faster and more convenient than boiling. Fig. 5.

a). It must be ascertained that the autoclave is filled with water to the proper level, that the vent is closed, and that all automatic controls are adjusted.

b). The trays of the autoclave should be covered with a thin towel. Fig. 6.

c). Instruments, textiles, and gloves are

Fig. 6. The loading of an autoclave. Observe the loosely stacked and irregularly placed objects and the horizontally placed containers to prevent air trapping and to facilitate steam penetration.



wrapped in muslin in such a way that free access of steam is permitted to all parts of the contents of the bundles. (Paper should not be used for wrapping as steam cannot penetrate it and air becomes trapped in the paper packages.) The wrappers are folded in such a way that they can be handled and unwrapped by unsterile hands without contaminating their contents. Figs. 7 and 8.

d). The packages are positioned carefully on the trays of the autoclave in such a way as to provide horizontal pathways for the escape of air. Overcrowding must be avoided as that would not permit free circulation of steam. Fig. 6.

e). The packages are covered with a muslin towel and the door of the autoclave is locked and the timer clock turned to the desired time. (The time setting has to include preheating to the required steril-

ization temperature, usually 7-8 minutes in a cold autoclave, according to the load, and 3-4 minutes in a hot autoclave. If preheating time cannot be estimated by previous experience then the clock has to be reset after temperature has reached desired degree. Air ejection is automatic in a properly constructed office autoclave.

f). After completion of the sterilization period pressure will return to zero within 4 minutes or it can be returned to zero immediately with venting of the steam, by opening the safety valve slightly.

g). At zero pressure the door is cracked open to permit the rapid evaporation of all vapor from the sterilizer chamber and the sterilized objects will be dry within 3-4 minutes, after which they can be removed.

Special Techniques

Bottles, glassware and hollow vessels

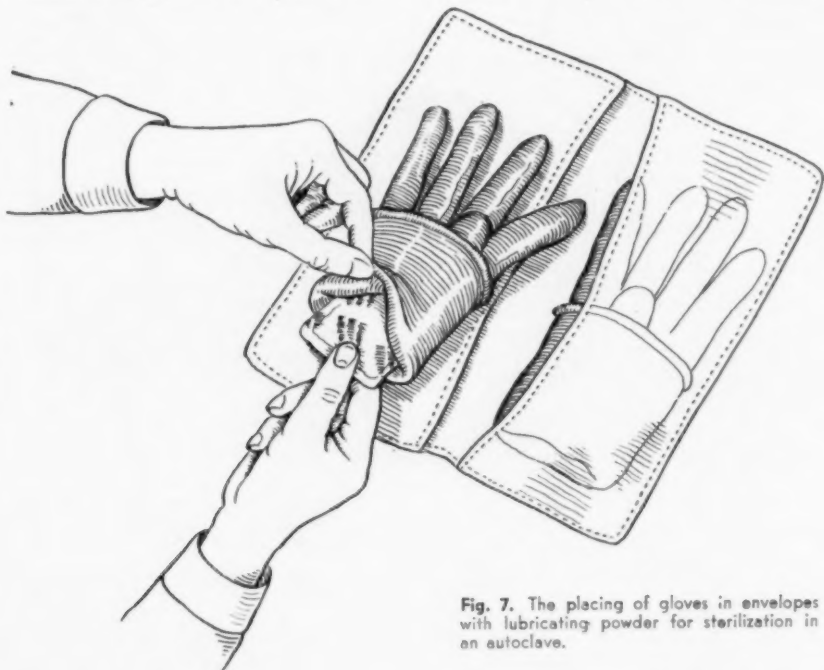


Fig. 7. The placing of gloves in envelopes with lubricating powder for sterilization in an autoclave.

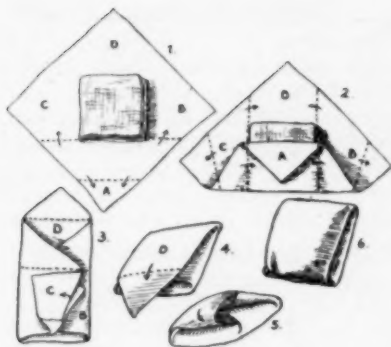


Fig. 8. The technique of wrapping textiles for autoclaving.

with narrow necks should be sterilized by placing a slight amount of water (2 cc. per quart) in them, which will turn to steam and will expel air.

Capped bottles and vials have to have the residual air evacuated with a needle and syringe to prevent blowing out of the stopper.

Gloves are sterilized in the upper part of the autoclave for 15 minutes at 121° C in specially designed envelopes which include also the powder necessary for lubrication. Only a starch derivative powder which is packaged for this purpose and includes the necessary moisture in the package for sterilization should be used (Bio-Sorb Absorbable Dusting Powder). Talcum is irritating to the tissues and, unless packed specially, cannot be sterilized during the short period of time above which rubber should not be exposed to high temperatures. Fig. 7.

Degermination of Hands

The last link in the chain of sterilization is the degermination of the skin of the operator's hands. The scrubbing tech-

nique using soap is so time-consuming that it cannot be carried out efficiently in office practice.

An emulsion containing the non-alkaline detergent sodium p-ter-octyl-phenoxyethoxyethoxyethyl ether sulfonate, lanolin, cholesterol and petrolatum combined with the degerminating agent bis(2-hydroxy-3,5,6-trichlorophenyl)methane (commercially available as pHisoHex) reduces the washing and degermination of the soiled hand to 3½ minutes. The hands should be washed with pHisoHex for 1½ minutes then rinsed and then scrubbed and washed for 2 minutes with pHisoHex and a medium stiff brush. The soiled hands should be washed always before scrubbing so that no micro-organisms will be rubbed into the pores. If the hands were not



Fig. 9. The washing and disinfecting of hands with a detergent containing a degerminating agent.

soiled scrubbing without the preliminary washing is sufficient. Fig. 9.

The preoperative degerming of the patient's skin will vary according to the topography and according to the operation and is part of the operative technique and is discussed with the technique of the operation.

EDITORIALS

Nutrition the Basic Factor in Life

All things hang upon sound nutrition, which, in turn, rests upon sound agricultural conditions. Nothing avails unless the soil is good, carefully conserved, and properly productive.

Well fed people would be, by and large, a healthy people. Candidly, this is not the case now and this is proven by the considerable extent of illness.

The proponents of socialized medicine assume an enormous prevalence of disease; in order to spend the fifteen billions or more of dollars annually which their silly system would entail there would have to be a vast prevalence of illness.

The surest way to put the quietus on socialized medicine proposals would be to raise the nutritional level of the population. Mortality rates are not the key to this matter; it is the morbidity rates that hold the solution.

The proper feeding of people is an expensive proposition; too many people now cannot afford the cost of milk, eggs, butter and meat in the volume that they should be consuming. The friends of inflation are the friends of socialized medicine, for the consequent high cost of living means a low level of nutrition.

All is futile unless fertility is restored to the soil. The farmer should be our Number One Citizen. He is the human key to a healthy population. "The real health centers of the future will be the American Farms themselves" (Jonathan Forman, editor *Ohio State Medical Journal*).

Premature aging is largely a nutritional problem. Why should not vascular de-

cadence follow upon the chronic consumption of inadequate diet?

Poor resistance to infection means a poor standard of living; this is largely a matter of protein deficiency.

To eat good food we must have good teeth; the development of such teeth is a nutritional equation. Good food and good teeth would end tuberculosis and the common type of alcoholism. The poor teeth of so many of our children is a nutritional phenomenon.

The dental aspect of nutrition also brings into consideration the relation of infected teeth to systemic disease, and here as elsewhere good resistance based upon good diet is the *sine qua non*.

We spend vast sums in the care of the consequences to mothers and their babies of inadequate diet; much of the morbidity of expectant and puerperal mothers and of premature infants is related to diet.

It is our good sanitation and better housing that spare us a greater holocaust in the nutritional area of our lives.

There must be not only enough food produced for all our people but the food must be of good quality, not over-refined, properly prepared and reasonably priced. Then all things will be added unto us upon which the greatness of a nation rests.

A prime example of what a dietary reform can do is afforded by the beneficent results of improved infant feeding. But even this has been an indirect approach. What we mean is that instead of imitating mothers' milk with our ingenious formulae we should have given the mothers a milk-producing diet.

Good soil, good food, good teeth!

W.S.

Biologic Assault and Battery

Colostrum, precursor of human milk, contains about 15 per cent of fat, phagocytic cells, and antibodies which give the infant its phenomenal protection against infection. The latter fact has been especially emphasized by Wiener. Experiments upon calves, using controls, have shown that when these animals are deprived of colostrum they do not thrive at the outset of their lives.

These facts constitute the strongest kind of argument against the prohibition of breast feeding in the all-out assault upon lactation so frequently instituted the moment a baby appears on the scene. In the light of our present knowledge this is nothing short of biologic assault and battery, if not felonious mayhem.

Human milk, according to recent research by Gyorgy et al., is rich in a factor which is believed to specially endow breast-fed infants with resistance to virus diseases, including poliomyelitis. It is a complex sugar (polysaccharide). It is extremely scanty in cow's milk; in fact, Gyorgy and his group estimate the ratio of the factor in the two milks as 50 to 1.

Of course it has long been a truism that breast-fed infants have a high resistance to intestinal and respiratory infections. Now we know why.

Between the antibodies and the aforesaid factor the plea for breast feeding gains much force.

Plausibilities and Realities

It is commonly assumed that the prosperous classes of people seek and receive more medical care than the poorer segments of the population. But according to Professor Seymour E. Harris of Harvard, speaking before the President's Commission on the Health Needs of the Nation, "as income goes up, per family percentages spent for medical care go down." The answer might lie in better nutrition and hygiene with consequent better health, necessitating less recourse to medical care.

(Vol. 80, No. 12) DECEMBER 1962

Thus our impressions, based upon plausibilities, are often unsupported by statistical realities.

Descent to Avernus

Britain now faces the certainty that her Welfare State System will show an increasing disparity between income and outgo; the annual deficit will increase by hundreds of millions and will soon reach the billion mark. This outcome can only be postponed by increasing the contributions of employers and employees, improving administration, and eliminating abuses.

It is now plain that Britain cannot afford her cradle-to-the-grave system.

Imagine a similar system in this country under auspices possibly no better than those revealed activating the Internal Revenue division of our recent government!

Relation of Weight to Longevity

Dublin, statistician of the Metropolitan Life Insurance Company, submits data to show that one-sixth of the American people are on the overweight side. He thinks the tendency to obesity the nation's No. 1 health problem. His study of large groups of individuals insured between 1925 and 1934 proves that the incidence of serious organic disease and premature death occurs at substantially higher rates in the overweight group, compared with those of normal weight of the same sex and age. "Both overweight men and women had a mortality one and a half times that of their sex in our standard experience. For both men and women, mortality increased with the degree of overweight."

Cardiovascular diseases accounted for most of the "extra" deaths.

Dublin's research confirms what we have long been aware of; he has bolstered such statistics as we already had.

We are eating too much starch, sugar and fat, and not enough protein—no proper diet for a nation aiming at leadership.

OBSTETRICS

HARVEY B. MATHEWS, M.D., F.A.C.S.*

Trends in Therapeutic Abortion

J. G. Moore and J. H. Randall (*American Journal of Obstetrics and Gynecology*, 63:28, Jan. 1952) present an analysis of 137 cases of therapeutic abortion in the first six months of pregnancy, done at University of Iowa Hospitals in 1926 through 1950; in the same period there were 24,172 deliveries at these hospitals. Except for the war years (1941 to 1945), there was a progressive decrease in the therapeutic abortion rate from 1926 through 1950. In more than half of the cases pregnancy was interrupted in the fourth month or later. This was due in some cases to the fact that the patient did not seek medical advice early in pregnancy, but in many cases, especially in hypertensive disease, symptoms recognized as an indication for abortion did not develop until the fifth or sixth month. The most frequent indication for abortion in this series was toxemia (49 cases), including hypertensive disease (44 cases), pernicious vomiting (3 cases) and glomerulonephritis (2 cases). Tuberculosis was the indication for abortion in 31 cases, chiefly pulmonary tuberculosis (26 cases). Cardiac disease was the indication in 18 cases, including 16 cases of rheumatic heart disease. Renal disease was the indication in 11 cases, including 6 cases of pyelonephritis of pregnancy and 3 of severe hydronephrosis, present before pregnancy. Abortion was done because of neurologic disease in 9 cases (multiple sclerosis, 5 cases) and because of psychiatric disease in 9 cases (chiefly depressive states). Malignant disease was

the indication for abortion in 4 cases. Abdominal hysterotomy was the method most frequently employed in this series, probably because so large a percentage of these abortions were done after the third month; the abdominal route is also preferable when sterilization is indicated. There were 7 deaths in this series, a mortality of 5.1 per cent, but 5 of these patients were "critically ill" at the time the operation was done. But the authors consider that more lives were saved than if the pregnancy had been allowed to continue. In some cases economic and social factors may have exerted some influence in determining indications for abortion, but the authors advise that only "strict medical indications" should be considered in therapeutic abortion.



MATTHEWS

COMMENT

Any statistical discourse on therapeutic abortion must take into consideration the source from which the cases are derived. The authors' series of 137 therapeutic abortions occurring in 24,172 deliveries gives far different statistical information than, shall we say, a like number from a local community or county hospital in the average American city. In the first instance the cases came from all parts of the state of Iowa that had been seen by all types of general

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practitioners in small urban and rural communities and consisted of a type of individual not seen in larger centers; whereas, in the second instance patients would come from local communities within easy driving distance who are more "doctor minded" and therefore seek advice early—even before pregnancy begins. We very rarely see patients who need to be aborted after 12-14 weeks, whereas in this series 50% were aborted at the 16th week or later. The indications given by the authors are valid and we do not question their sincerity in giving relief to these mothers. What we do wonder is, first, why the late diagnosis; and secondly, what treatment, if any, did these patients have before "Iowa" got them? It seems to us that this article has a misleading title and that it should be entitled "Therapeutic Abortion in Iowa; What Can Be Done To Improve Treatment." At any rate this is a very instructive article and any physician who will "digest it" will find his knowledge of therapeutic abortion considerably enhanced. This is a problem constantly presenting itself to the practitioner who must assume great responsibility in trying to do the right thing by the patient, to himself and to the "law of the land."

H.B.M.

The Use of Chloroamphenicol in Obstetric Infections

E. S. Taylor and W. C. Scott (*Western Journal of Surgery, Obstetrics and Gynecology* 60:36, Jan. 1952) report the use of chloroamphenicol in the treatment of 15 cases of pyelonephritis of pregnancy, 27 cases of postpartum infection, and 10 cases of premature rupture of the membranes. Chloroamphenicol was given by mouth in every case; the initial dose was 3 Gm., given in divided doses of 1 Gm. every hour, then 0.5 Gm. was given every six hours until symptoms were completely relieved. In the 15 cases of pyelonephritis of pregnancy, positive urinary cultures were obtained in 13 cases, *E. coli* being the organism most frequently found (11 cases). All these patients responded well to the treatment, fever and all other symptoms subsiding in forty-eight hours. In the 27 cases of postpartum infection, there were 16 cases of endometritis, 7 of pyelonephritis, and 4 cases showing both types of infection; pathogenic organisms were obtained by culture in 26 of these cases, non-remolytic streptococci predominating.

Chloroamphenicol was effective in every case, the temperature falling to normal within twenty-four hours in half the cases; in all but 2 cases the temperature became normal within four days. In the 10 cases of premature rupture of the membranes, chloroamphenicol was given prophylactically when labor did not begin within twenty-four hours. Nine of these patients remained afebrile without signs of intra-partum infection; one patient developed a temperature of 99.4°F. on the day of delivery. In each case, the infant, the placenta and the membranes showed no signs of infection. The authors have also employed penicillin in various types of obstetrical infection, but chloroamphenicol has the advantage that it is effective when given by mouth and that it is active against a wide variety of pathogenic organisms, both gram-negative and gram-positive.

COMMENT

During the past 10 years puerperal infection has dropped from second to sixth place as a cause of puerperal mortality. This improvement has been accomplished through the operation of several factors, viz.: (1) better obstetrics; (2) through the use of chemotherapy and/or antibiotics, more recently by a combination of antibiotics; and (3) more adequate prenatal care and therefore healthier, more resistant mothers. The use of antibiotics both prophylactically and therapeutically has almost become routine in many parts of the country. Penicillin, in one form or another, and in combination with the newer antibiotics, such as streptomycin, Terramycin, Aureomycin, are most commonly employed. In some instances chemotherapy is also added. Taylor and Scott have employed chloroamphenicol, a synthetic antibiotic, which is preferably given by mouth. They report 52 cases of obstetric infections that were successfully treated with this agent. They employed chloroamphenicol both prophylactically and therapeutically. It is freely transmitted through the placenta and thus the infant is protected against the infection. It has the added advantage of being effective against both Gram positive and Gram negative bacteria. We have had no personal experience with this new antibiotic but it is evidently a very effective antibiotic which may be used in the home, clinic or hospital. Wonderful! all antibiotics are wonderful. They are life-saving. All the physician has to do is know "when and which" antibiotic to employ and "do it right now." On the other hand, we should not "let

down" on good common sense and technics, knowing that the antibiotics will "save face" if and when infection "sets in." We oldsters know that by eternal vigilance and meticulous technic we prevented most infections because we had no blood transfusions or chemotherapy or antibiotics to fall back on. You moderns can do the same thing today and you should. The antibiotics furnish that "extra dividend."

H.B.M.

The Management of Vaginal Bleeding During the Last Trimester of Pregnancy

R. E. Crowder and associates (*Western Journal of Surgery* 59:565, 565, Nov. 1951) describe a conservative method for treatment of patients who develop vaginal bleeding in the last trimester of pregnancy. The patient is immediately hospitalized and kept at rest in bed; physical examination is made, and blood count and hematocrit determination, but no rectal or vaginal examination is done. If the blood count and hematocrit indicate excessive blood loss, sufficient blood transfusion is given to compensate for the loss. At the end of twenty-four hours a placentalogram is usually made, which may establish the differential diagnosis of placenta previa or abruptio placentae. The patient is kept in bed until bleeding has ceased for twenty-four hours; if when she is out of bed for short periods of time, bleeding does not recur in the next twenty-four hours, she may be discharged from the hospital with instructions to return if any bleeding occurs. If bleeding continues, the patient is kept in bed and transfusions given to compensate for blood loss in an attempt to carry the pregnancy through to at least thirty-eight weeks. If the bleeding becomes alarmingly profuse, if signs of fetal distress are noted, or if labor begins, the patient is prepared for delivery and a vaginal examination is done to establish the diagnosis of placenta previa or abruptio placentae and determine the best method of delivery. In complete placenta previa with the placenta covering the cervical os, immediate cesarean section is indi-

cated if the infant is living. In partial placenta previa, if the placenta covers less than one-half of the internal os, and the condition of the cervix is favorable, labor may be induced. In minor abruptio placentae labor may also be induced. In major abruptio placentae, cesarean section is indicated, in some cases, especially if the infant is viable; in other cases if the condition of the cervix is favorable, labor may be induced. In 50 cases treated by the conservative method described, including 18 cases of placenta previa and 32 cases of abruptio placentae, there were no maternal deaths, and the corrected fetal mortality was 17 per cent, indicating that this method does not increase the hazard to the mother and decreases the fetal loss.

COMMENT

In the management of vaginal bleeding during the last trimester of pregnancy conservatism should be the order of the day. On the other hand, when there has been sharp hemorrhage [seen by the physician] we like to make a sterile vaginal examination in the examining room at the hospital in order to make a more accurate diagnosis. We teach and practice that "without a diagnosis there can be no intelligent treatment" and to make a diagnosis we must do vaginal examination using care and gentleness. No "bull in the china closet" examination! We have seen other lesions than placenta previa or ablatio cause vaginal bleeding near term. We never allow a patient to go home from the hospital once a diagnosis of placenta previa or ablatio placentae has been made. We, of course, try to prolong the pregnancy until good viability of the baby has been reached—the nearer term the better. Rest in bed; blood transfusions as indicated; proper diet; encouragement by all those in attendance but particularly from the physician whose kind and sympathetic attitude does much to comfort the frightened patient and thus help continue the pregnancy. "Fear and fright" coupled with uncontrolled anxiety are hazards to be overcome as quickly as possible. Operative procedures are reserved until conservative measures have failed. Do not handle these cases at home; hospitalization is a "must."

H.B.M.

A New Roentgen Sign of Fetal Death

S. N. Tager (*American Journal of Roentgenology, Radium Therapy and Nuclear Medicine*) describes a new sign of

intrauterine fetal death. In cases in which the possibility of fetal death is in question, two radiograms are made. The first is the routine anteroposterior view with the patient in the supine position; for the second, the anteroposterior projection is also used, but with the patient standing erect. The roentgenograms are studied with special attention to the spine of the fetal skeleton. If the first film, with the patient supine, shows no abnormalities, but the film, with the patient erect, shows "a complete collapse" of the fetal spine in the pelvic region, this is a sign of fetal death. Even in a fetus, the maintenance of any posture or attitude depends on the contraction of skeletal muscles; in the case of death, the absolute loss of muscle tone causes loss of the postural attitude, which is indicated by collapse of the fetal spine when the mother is in the erect position. Three illustrative cases are reported in which this sign was positive and no other accepted sign of intrauterine death was demonstrated. It is noted especially that Spalding's sign (the overlapping of sutures in the absence of

labor) was not present in any of these cases. In each case of the 3 cases reported, the mother had noted absence of fetal movements, and the physician consulted was not able to hear the fetal heart sounds; in each case a dead fetus was delivered, which was macerated in 2 of the cases.

COMMENT

The use of x-rays in obstetrics for diagnostic purposes has been employed almost routinely since Roentgen made his discovery in 1895. We have used it for the past 40 years when diagnosis became a problem and since Cadwell and Moley brought out their first paper on x-ray pelvimetry we have employed the x-ray in all questionable pelvises and in cases of breech presentation in primiparous women. We published a paper on the "Use of X-ray in Obstetrics" some 25 years ago which called attention to the sign of intra-uterine fetal death that the author herewith reports. It is a positive sign of fetal death and may be determined as early as 48 hours—some say much earlier—after death of the fetus. We recommend without exception the use of the x-ray films wherever the diagnosis is uncertain. It is a great help. "Seeing is believing" and if there should be "court action" in such a case you would be stuck if you could not "show the x-ray pictures" as proof of your claim.

H.B.M.

GYNECOLOGY

HARVEY B. MATTHEWS, M.D., F.A.C.S.*

Pelvic Endometriosis

H. C. Stearns (*Western Journal of Surgery, Obstetrics and Gynecology*, 60:13, Jan. 1952) reports 139 cases of pelvic endometriosis, all but 2 of which were treated between 1935 and 1949, the latter 2 in 1949. The majority of these patients (103) were thirty-five to fifty years of age; only 8 patients were over fifty years of age. The chief complaint in 68 cases was menorrhagia and in 36 cases metrorrhagia; in 38 cases pelvic pain of an undefined na-

ture was the chief complaint; only 23 patients had premenstrual pain; pain on defecation during the menstrual period was the chief symptom in 24 cases; and pain at coitus near the time of the menstrual period in 27 cases. Fourteen women sought treatment primarily for sterility.

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In pelvic endometriosis in young women, the aim of treatment was to preserve ovarian function and the childbearing function when possible. However, in some cases removal of all endometrial lesions with the ovaries and uterus was necessary. Some ovarian tissue was conserved in 84.3 per cent of the cases in this series; uterus, tubes and ovaries were completely removed in only 22 cases. In 25 cases only resection of the lesions was done without removal of any other tissue. In 121 of the 139 patients in this series, results of the treatment are satisfactory with relief of pain and abnormal bleeding. In 18 cases there was a recurrence of endometriosis, and further treatment was necessary either by radiation or by more radical operation for removal of all ovarian tissue. Of the 14 patients who complained of sterility, 7 became pregnant after the removal of endometrial tissue; these included the patients treated most recently. Two other patients in this series have also become pregnant since operation. In the author's opinion the results reported show that "conservatism in the treatment of endometriosis pays off."

COMMENT

Endometriosis in women under 35 or where sterility is the chief complaint, is one of the most perplexing problems that the gynecologist has to face. Radical treatment is certainly contraindicated for very obvious reasons. Conservatism must therefore be employed. But! what is conservatism in these particular cases? In our hands retention of both ovaries and tubes is ideal. Where this can not be accomplished, in toto resection of one or both ovaries, leaving as much ovarian tissue as is humanly possible, is done. Likewise the fallopian tubes are retained in spite of the fact that they may be considerably involved, or, if some reparative operation must be performed on one or both tubes, this is carefully done, using any one of several standard techniques for the purpose of leaving one or both patent oviducts. We have transplanted one such tube into the cornu of the uterus but without a successful pregnancy. We can agree wholeheartedly with the author when he says "conservatism in the treatment of endometriosis pays off"; however, we would add "during the childbearing age". In the woman over 40 total ablation of all pelvic organs is permissible and curative.

H.B.M.

End-Results in the Treatment of Ovarian Carcinoma with Surgery and Deep X-ray Irradiation

H. E. Schmitz and J. T. Majewski (*Radiology*, 57:820, Dec. 1951) report results of treatment in 1943 cases of ovarian carcinoma under observation for at least five years after treatment was completed. The cardinal symptom was abdominal swelling in 65 cases and the presence of an abdominal mass in 28 cases; 20 patients had a vaginal discharge and 20 had noted menstrual irregularities. But abdominal swelling and abdominal mass are symptoms that appear only when the ovarian tumor has grown to a considerable size, therefore relatively late in the disease. Early diagnosis of ovarian carcinoma can be made only by careful pelvic examination, especially in women over thirty-five years of age, when they first come under a physician's care. The ages of the patients varied from sixteen to eighty-two years of age, the highest incidence being in the sixth decade of life. The tumors in this series were classified according to Schmitz classification: Group I, including completely operable tumors, not extending to surrounding tissues; Group II, tumors also completely operable although adherent or extending into surrounding tissue; Group III, tumors not completely operable, but partial removal possible; Group IV extensive tumors with metastases, only exploratory operation or biopsy possible; Group V completely inoperable and terminal. In cases where radical operation was possible, a total hysterectomy with removal of both tubes and ovaries was done, this was followed by roentgen-ray irradiation of the entire pelvis; in cases in which radical operation was not possible, as much diseased tissue as possible was removed, followed by roentgen-ray therapy. The total five-year survival rate for the entire series was 20.28 per cent; if the 38 cases in which only supportive therapy was possible are eliminated, the five year survival rate is increased to 27.5

per cent. In cases where complete surgical removal of grossly diseased tissue was possible, the survival rate was nearly 50 per cent.

COMMENT

1943 cases of ovarian carcinoma give the authors' authority to speak from experience. Certainly this is one of the largest series with 5-year follow-up that we know about. We can heartily agree with their management and congratulate them upon their results. This is an insidious form of cancer. There are no alerting symptoms; 65% of this series sought advice for "enlargement of the abdomen" but by this time the disease was found to be far advanced. Leukorrhea, bleeding and pressure are all later symptoms and besides are not specific for ovarian malignancy; 10% of women in the authors' series had significant symptoms 2 years or more before a doctor was seen. More frequent vaginal examinations may be the answer in earlier diagnosis of ovarian cancer. We have long recommended for all women a vaginal examination by a gynecologist once a year up to 35; twice a year up to 45; three times a year for the rest of their life. Such a routine would "catch" early many cancers other than ovarian cancer. Early diagnosis is still our best bet in the treatment of cancer and the family physician is the "key man" in the fight against cancer. Why not become a "key man"?

H.B.M.

Hormonal Control of Functional Uterine Bleeding

R. B. Greenblatt and W. E. Barfield (*American Journal of Obstetrics and Gynecology*, 63:153, Jan. 1952) state that in cases of functional uterine bleeding, treatment with a combination of estrogen, progesterone and testosterone will arrest the bleeding within forty-eight hours in 95 per cent of cases. In one series of cases treated, a combination of 1.66 mg. estradiol, 25 mg. progesterone and 25 mg. of testosterone was employed, and in another series the combination used was 6 mg. of estrone, 50 mg. of progesterone and 25 mg. of testosterone. This combined steroid therapy is employed for five days; withdrawal bleeding, which simulates a normal menstrual period, although it may be excessive for the first two days, occurs two to seven days after treatment is

stopped. About twenty days later, a course of progesterone is given by mouth (30 mg. daily for five days) to induce another withdrawal period; instead of progesterone given by mouth, progesterone may be given by intramuscular injection (10 mg. daily for three days) or pregnenolone by mouth (30 mg. daily for five days). This progesterone therapy is continued at monthly intervals, until cyclic ovulatory menses are established, as shown by basal temperature readings. If spotting occurs in the intermenstrual period an estrogen may be given (1.25 mg. estrone sulfate daily, or its equivalent) for fifteen or twenty days, followed by the progesterone therapy. If bleeding is severe, the initial dose of the combined steroids may be doubled. If bleeding is so acute that the patient is exsanguinated, the withdrawal bleeding should be delayed for several weeks by the administration of estrogen. In the control of the acute bleeding, estrogen may be given intravenously at first. This method of treatment of functional uterine bleeding the authors consider of special value in young women in whom bleeding may thus be controlled without operation, x-ray or radium therapy, and with preservation of the "childbearing potential."

COMMENT

The "battle of the endocrines" is forever going on. However, a few persistent researchers, like Goldblatt and a few others, have done yeoman service "in clearing the fog of misunderstanding" in the field of hormonal therapy in gynecology. The racketeers are all but ostracized for even the lay public have "gotten on to their game"—shots for every ailment known to science. But, seriously, we agree with the authors that by the judicious use of hormonal therapy functional uterine bleeding can be controlled in a very large percentage of cases. Seldom is there need for mutilating operations, x-rays or radium for the relief of functional uterine bleeding. For the adolescent girl it is a "godsend" since the childbearing potential may be now preserved. All physicians should keep posted on hormonal therapy and more particularly those doing office gynecology. Really grand results may be had if you "know your way around".

H.B.M.

Delays and Errors in the Diagnosis and Treatment of Endometrial Carcinoma

W. W. Finn (*New York State Journal of Medicine*, 52:235, Jan. 13, 1952) reports 10 illustrative cases from a series of 292 cases of endometrial carcinoma showing errors in diagnosis and treatment. Among the errors in diagnosis are failure to investigate irregular bleeding in women before the menopause, correction of an obvious cause of postmenopausal bleeding without study of the endometrium, including curettage; reliance on smears or on biopsy without adequate curettage. Errors in treatment include the use of intra-uterine radium before hysterectomy (in the illustrative case reported ovarian metastases were found at operation after the use of radium). Other errors in treatment include failure to suture the cervix before hysterectomy or removal of the cervix or

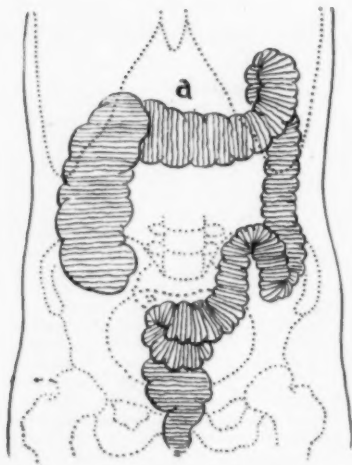
the adnexa "as separate specimens" at hysterectomy, the performance of subtotal hysterectomy when endometrial carcinoma has not been diagnosed and the performance of vaginal hysterectomy without doing a preliminary curettage.

COMMENT

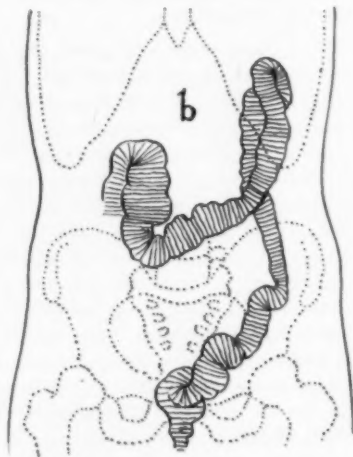
Every physician doing gynecology and/or obstetrics should read this article by Dr. Finn. It will make him a better diagnostician. Early diagnosis is still the "keystone wedge" in the cure of cancer and the family doctor is the "key man" in its early discovery. Nowadays it behooves every general practitioner to "know his cancer". Through the sustained efforts of the American Cancer Society and other similar organizations the lay people have become educated and they demand to know "have I got cancer?". The family doctor must meet this challenge and he can if he keeps tabs on what is going on in the "cancer world". No practitioner today is more than "driving distance" from a cancer clinic, hospital or medical college where he can "brush up" on cancer. Do it now! Tomorrow such knowledge may save a life.

H.B.M.

Clini-Clipping



(a) Comparison of the normal colon with the pathological appearance in ulcerative colitis



(b) Configuration of the colon normally and in ulcerative colitis

MEDICAL BOOK NEWS

Bacteriology

Diagnostic Bacteriology. A Textbook for the Isolation and Identification of Pathogenic Bacteria. By Isabelle Gilbert Schaub, A. B. & M. Kathleen Foley, M. A. 4th Edition. St. Louis, C. V. Mosby Co., [c. 1952]. 8vo. 356 pages, illustrated. Cloth, \$4.50.

This work fully retains the purpose of its original edition in providing a lucid, simple and clear description of methods for use in practical bacteriology. The book has been enhanced by the addition of methods dealing with the newer field of antibiotics. It is a very handy book for inclusion in the equipment of the laboratory of the bacteriologist.

MAX LEDERER

Therapeutics

Medical Treatment. Principles and Their Application. Edited by Geoffrey Evans, M.D., London, Eng., Butterworth & Co., [St. Louis, C. V. Mosby Co.], [1951]. 8vo. 1,398 pages, illustrated. Index of 66 pages. Cloth, \$20.00.

This book covers the treatment of practically all medical problems.

The treatment discussed is right up to the minute (1951). There is an excellent chapter on transfusions, also on radio isotopes and arthritis, amongst the many other subjects covered.

The subjects are discussed alphabetically, which makes for easy reference.

Where indicated, actual prescriptions are given. It is truly remarkable how much material the authors have incorporated in this one book.

This book can be highly recommended for a quick reference book on therapeutics.

VINCENT ANNUNZIATA

Pathology

A Textbook of Pathology. Pathologic Anatomy in Relation to the Causes, Pathogenesis, and Clinical Manifestations of Disease. By Robert Allan Moore, M.D. 2nd Edition. Philadelphia, W. B. Saunders Co., [c. 1951]. 4to. 1,048 pages, illustrated. Cloth, \$12.50.

The new (2nd) edition is a welcome addition to the field of textbooks of pathology. New chapters have been added in disturbances of metabolism of enzymes, general consideration of infectious diseases and diseases peculiar to the aged.

The emphasis in presentation has been on the physiologic and chemical aspects of pathology. Clinicopathologic correlation is presented at the conclusion of each disease entity. This clinical correlation is extremely valuable and achieved without neglect of morphologic changes which are the basic fundamentals in the knowledge of disease.

The text is abundantly and beautifully illustrated with photomicrographs and clinical pictures, some in color. The reference literature is comprehensive and current.

EDMUND R. MARINO

Physical Diagnosis

Physical Diagnosis. By Ralph H. Major, M.D. 4th Edition. Philadelphia, W. B. Saunders Co., [c. 1951]. 8vo. 446 pages, illustrated. Cloth, \$6.50.

The new edition of this standard work in physical diagnosis has been brought up to date and improved by the addition of better illustrations. It remains one of the best works in its field.

CHARLES M. PLOTZ

M Medical TIMES

THE JOURNAL OF GENERAL PRACTICE

January
to
December

1952
INDEX

Volume 80
Numbers
1-12

AUTHORS AND SUBJECTS

| | | | |
|--|--------|--|--------|
| Adriani, John: Death from Anesthesia..... | 6:329 | Dudgeon, Howard, Jr.: Dislocation of the Hip With Fracture of the Posterior Acetabular Rim | 7:431 |
| Appleby, Lyon H.: Glimpses of the 1952 Acute Abdomen | 5:269 | Elliott, John L.: Atherosclerosis—Thesis and Hypothesis | 10:615 |
| Barach, Joseph H.: Diabetes | 2:67 | Eqson, Murdoch: Nasal Bleeding | 10:606 |
| Baroody, Waddy G.: Parenteral Chloromycetin | 4:228 | Evans, Albert L.: Presacral Sympathectomy | 11:682 |
| Barr, Martin: Modern Concepts Concerning the pH of the Skin | 2:106 | Fabricant, Noah D.: Practical Management of Everyday ENT Problems | 3:478 |
| Bishop, Louis Fauques: The Heart and Its Management in the Elderly Patient | 1:23 | Farber, Jason E.: Antibiotic Anaphylaxis | 1:28 |
| Block, Marvin A.: The Community Cooperative Approach to Alcoholism | 5:286 | Ficarra, Bernard J.: The Surgical Pathology of Appendicitis | 2:96 |
| Brown, John M.: Preventive Medicine in Anesthesia | 10:583 | Ficarra, Bernard J.: Thyroid Disease | 4:236 |
| Brown, Robert: Nasal Bleeding | 10:606 | Ficarra, Bernard J.: Traumatic Retroperitoneal Hemorrhage | 7:436 |
| Brown, W. T.: Antibiotic in General Practice | 8:451 | Glassman, Jacob A.: Surgical Care for the General Practitioner | 5:257 |
| Rubert, John D.: Peripheral Vascular Disease | 2:101 | Greenhouse, Barnett: NPH Insulin | 11:706 |
| Huckner, Frank: Nasal Bleeding | 10:606 | Gregory, Hugh H.: Presacral Sympathectomy | 11:682 |
| Burke, James O.: Diagnostic Features of Pancreatitis and Carcinoma of the Pancreas | 11:690 | Hanckel, Richard W.: Hoarseness and Cancer of the Larynx | 7:421 |
| Carpenter, Eugene: Endameba Histolytica in General Practice | 3:129 | Harken, Dwight E.: Surgical Correction of Mitral Stenosis | 11:657 |
| Cartnick, Edward N.: Vaginal Bleeding at the Menopause | 12:783 | Hers, Lucius F.: Rheumatic Disease | 5:297 |
| Cleere, Roy L.: Infant Care | 9:549 | Howard, G. Turner, Jr.: The Nodular Goiter | 5:277 |
| Coffer, Olin S.: Presacral Sympathectomy | 11:682 | Jackson, Arnold S.: What Every General Practitioner Should Know About Goiter | 4:216 |
| Conner S. Kent: Rheumatoid Spondylitis | 6:345 | Johnson, Richard P.: Review of Bundle Branch Block | 12:735 |
| Craig, Paul E.: Hypertension | 2:92 | Jones, Otley S.: Surgical Treatment in Peptic Ulcer | 3:145 |
| Dana, Ethel S.: Management of Menopause | 4:221 | Jordan, Edward J.: Aids in Early Diagnosis of Cancer—The Biopsy | 9:528 |
| Davis, David W.: Non-Specific Urethritis | 2:105 | Jedovich, Bernard: Intermittent Traction for Herioted Discs | 1:31 |
| Dickson, James E.: Surgical Correction of Mitral Stenosis | 11:657 | Kaiser, Albert D.: Child Safety—A Doctor's Responsibility | 6:359 |
| Dewd, George C.: Senile Diabetes Mellitus | 9:537 | | |

| | |
|--|--------|
| Keefer, Keith C.: Use of Heat in General Practice | 5:201 |
| Krause, George R.: Sublobar Bronchopulmonary Segments—Clinical Importance | 12:559 |
| Kroger, William S.: "Natural Childbirth" | 8:484 |
| Leader, Abel J.: Retropubic Prostatectomy | 1:1 |
| Leader, Abel J.: Prostatic Cancer—Questions & Answers | 9:515 |
| Levin, H. A.: Lateral-Slit Circumcision | 8:493 |
| Levine, Herbert L.: Uteroglandular Tuberemia | 4:233 |
| Loeb, Roland A.: Cytology in General Practice | 12:751 |
| Lomineck, Reuben W.: Friedax in Oral Cholecystography | 3:165 |
| Lovell, Harold W.: Alcoholism | 4:191 |
| Lubert, Mortimer: Sublobar Bronchopulmonary Segments—Clinical Importance | 12:759 |
| Lynn, Chester P.: Coarctation of the Aorta | 7:419 |
| McNealy, Raymond W.: Surgical Care for the General Practitioner | 5:257 |
| McNeely, George Bradley: A Simplified Technique for Nailing Femoral Neck Fractures | 8:468 |
| Mann, Mortimer: Fundus Changes in Hypertension and Diabetes | 6:350 |
| Marshall, Wallace: Insulin Dosage in Diabetics | 3:167 |
| Maya, Henry W., Jr.: Carcinoma of the Stomach | 6:356 |
| Mazella, Vincent P. and N. J.: Suppression of Lactation | 3:151 |
| Mozley, Vince: Parenteral Chloromycetin | 4:228 |
| Nobel, Golda R.: Intermittent Traction for Herniated Discs | 1:31 |
| Ottosen, Paul: Surgical Correction of Mitral Stenosis | 11:657 |
| Pennington, A. W.: Obesity | 7:589 |
| Postma, George S.: Non-Calculous Biliary Obstruction | 11:691 |
| Raich, Eugene: Postoperative Anesthetics in Anorectal Surgery | 3:156 |
| Rapp, Roy T.: Breach Presentation—Management | 10:610 |
| Rinker, J. Robert: Bladder Dysfunction in Children Due to Congenital Defects | 10:631 |
| Ritchie, Wallace P.: Treatment of Pain from Cancer | 12:767 |
| Roach, George: Nasal Bleeding | 10:606 |
| Ross, Joseph: Antibiotic Anaphylaxis | 1:28 |
| Ryan, Robert E.: Symptomatic Treatment of Headaches—A New Agent | 5:291 |
| Schoonover, Frank S.: Rethinking Old Problems in Urology | 7:425 |
| Seltzer, Albert F.: The Facelift Operation in Plastic Surgery | 1:36 |
| Shapiro, Shepard: Anticoagulant Therapy in Myocardial Infarction | 7:413 |
| Sichel, Martin S.: The Management of the Rh Negative Patient during Pregnancy | 9:532 |
| Silbert, Nathan E.: Infectious Arthritis | 2:103 |
| Smith, Con G.: The Problem of the Neurotic Patient | 9:546 |
| Smith, J. A.: Antabuse in General Practice | 8:453 |
| Soffer, Alfred: Arteriosclerosis | 2:39 |
| Sussman, Nathan: ACTH Sensitivity | 3:154 |
| Sussman, Nathan: The Autonomic Nervous System in Rheumatoid Arthritis | 9:560 |
| Thorek, Philip: Acute Appendicitis | 10:599 |
| Thorek, Philip: Problems in Intestinal Obstruction | 12:773 |
| Thorn, Sylvester W.: Cervical Spine Injuries | 11:686 |
| Tintera, John W.: Alcoholism | 4:191 |
| Warren, Carroll B.: Caesarean Section in Rural Communities | 2:96 |
| Watson, James E., Jr.: Cervical Spine Injuries | 11:686 |
| Yost, Orin R.: The Alcoholic Personality | 9:540 |

OFFICE SURGERY

| | |
|--|--------|
| Antibiotic Therapy in Ambulatory Surgery | 11:711 |
| Bursitis, Acute | 3:169 |
| Bursitis, Traumatic | 2:111 |

| | |
|---|--------|
| Catheterization of the Male Urethra | 7:438 |
| Circumcision (Adult) | 5:304 |
| Circumcision (Infant) | 4:238 |
| Electrosurgery, Principles of, for the Removal of Superficial Skin Tumors | 10:634 |
| Hydrocele | 6:373 |
| Lymphangitis and Lymphadenitis | 1:44 |
| Varicose Ulcers | 9:564 |
| Varicose Veins, Injection of | 8:496 |
| Wounds, Aseptic Treatment of | 12:780 |

REFRESHER ARTICLES

| | |
|---|--------|
| Anticoagulants | 10:588 |
| Coma, Differential Diagnosis of, with suggestions for Emergency Treatment | 12:743 |
| Chest Pain | 2:78 |
| Dizziness | 8:455 |
| Hemiplegia | 3:137 |
| Immunity | 9:520 |
| Jaundice, The Differential Diagnosis of | 1:7 |
| Potassium Deficiency in the Surgical Patient | 5:264 |
| Psychiatric Disorders in General Practice | 4:200 |
| Tuberculosis, Pulmonary | 6:337 |
| Ulcer, Peptic | 7:399 |
| Urinary Tract Infections, Common | 11:566 |

CLINICO-PATHOLOGICAL CONFERENCE

| | |
|--------------------|----------------|
| Case Reports | 11:701, 12:779 |
|--------------------|----------------|

CONTEMPORARY PROGRESS

| | |
|---|-----------------------------|
| Gynecology | 4:244, 12:601 |
| Medicine | 1:151, 5:311, 10:645 |
| Neurology | 11:720 |
| Obstetrics | 1:157, 4:248, 12:790 |
| Ophthalmology | 5:310, 10:651 |
| Otology | 3:177, 9:570 |
| Pediatrics | 2:120, 6:382, 11:723 |
| Public Health, Industrial Medicine and Social Hygiene | 2:117, 8:504 |
| Rhinolaryngology | 3:174, 9:573 |
| Surgery | 1:154, 5:315, 9:564, 10:640 |
| Therapy, Physical | 7:445 |
| Urology | 3:100, 8:503 |

EDITORIALS

| | |
|---|--------|
| American Academy of General Practice, Future of the | 10:640 |
| Alcohol and Road Traffic | 9:568 |
| Alcoholism as Conditioned by Sex | 11:719 |
| Alcoholism, Who Should Pay the Grievous Costs of? | 1:49 |
| Antituberculous Drugs, The New | 6:381 |
| Atherosclerosis and Fats | 3:172 |
| Attention Multitaskers! | 8:502 |
| Avernum, Descent to | 12:797 |
| Biologic Assault and Batteries | 12:797 |
| Bureaucratic Control of Research and Education. The Trend Toward | 3:173 |
| Chemotherapy, Timely Warning on Early Connoisseurs, Magic and Blends | 7:444 |
| "Cradle-to-the-Grave" Nightmare, Planning the | 8:502 |
| Deafness, The Problem of Noise | 10:640 |
| Diagnosis & Prognosis, A | 8:503 |
| Diminishing Returns | 7:443 |
| Disease, Freedom to Incubate | 6:381 |
| Distinguished Character, Introducing a New Feature of | 2:115 |
| Enemy Within, The | 11:719 |
| Family Physician, Role of the, in Raising the Standards of Medical Practice | 2:115 |
| Flying Saucer, Debut of Le Jote | 1:48 |
| Freedom, Medical Style | 6:308 |
| Freedom Is the Right to Choose | 9:568 |
| Health Needs of the Nation | 10:641 |
| Human Centrifuge, Possibilities of Navy's | 8:502 |

| | |
|--|--------|
| Imagination in Science, Role of | 4:213 |
| Impotence, The Alcohol Factor in | 5:309 |
| Left Wing's Aim and End, The | 11:719 |
| Loyalty Oath, The | 7:444 |
| Malaria, The Menace of | 1:50 |
| Medical Educators Need Help of Lay Men | 8:503 |
| Medical Journalism, Abating the Dead Hand in | 2:114 |
| Medical School Budgets | 1:19 |
| Nothing (or Not Much) New Under the Sun | 6:330 |
| Nutrition the Basic Factor in Life | 12:796 |
| Paradoxical | 11:719 |
| Plausibilities and Realities | 12:797 |
| Population, Older Segments of, Changing Ratio of | 5:309 |
| Power, Beware Corrupting | 7:443 |
| Practitioners, New York City's Underprivileged | 4:242 |
| Rat Race | 10:641 |
| Recovery, World, Planning | 5:310 |
| Reefers, Goof Butts and Mary Warners | 7:443 |
| Royalties For Medical Schools | 4:243 |
| Socialized Medicine A Factor in France's Decline | 6:331 |
| Soviet Population Trend, The | 10:641 |
| Surgery, Destructive | 2:114 |
| Taxes and Subsidies | 9:567 |
| Tuberculosis Control | 3:173 |
| Utopia in a Straitjacket | 9:568 |
| Virtue is Safe, Our | 4:242 |
| Weight to Longevity, Relation of | 12:797 |
| Welcome, Brothers! | 1:49 |
| What Can the Motives Really Be? | 3:172 |
| World Grows Smaller, The | 5:309 |

SUBJECTS AND AUTHORS

| | |
|---|--------|
| ACTH Sensitivity; Nathan Sussman | 3:154 |
| Abdomen, Acute Glimpses of the 1952; Lyon H. Appleby | 5:269 |
| Alcoholic Personality, The, Orin R. Yost | 9:540 |
| Alcoholism; Harold W. Lovell and John W. Tinters | 4:191 |
| Alcoholism, Community Cooperative Approach to; Marvin A. Block | 5:286 |
| Anesthesia, Deaths from; John Adriani | 6:329 |
| Anesthesia, Preventive Medicine in; John M. Brown | 10:583 |
| Anesthetics, Postoperative, in Anorectal Surgery; Eugene Raicus | 3:156 |
| Antabuse in General Practice; J. A. Smith and W. T. Brown | 8:451 |
| Antibiotic Anaphylaxis; Jason E. Farber and Joseph Ross | 1:28 |
| Aorta, Coarctation of the; Chester P. Lynxwiler | 7:419 |
| Appendicitis, Acute; Philip Thorek | 10:599 |
| Appendicitis, The Surgical Pathology of; Bernard J. Ficarra | 2:98 |
| Arteriosclerosis; Alfred Soffer | 2:99 |
| Arthritis, Rheumatoid, the Autonomic Nervous System in; Nathan Sussman | 9:566 |
| Asthma, Infectious; Nathan E. Silbert | 2:103 |
| Atherosclerosis — Thesis and Hypothesis; John L. Elliott | 10:615 |
| Biliary Obstruction, Non-Calculous; George S. Postma | 11:694 |
| Bladder Dysfunction in Children Due to Congenital Defects; Robert J. Rinker | 10:631 |
| Breast Presentation—Management; Roy T. Rapp | 10:610 |
| Bronchopulmonary, Sublobar Segments—Clinical Importance; George R. Krause and Mortimer Lubert | 12:759 |
| Bundt Branch Block, Review of; Richard R. Johnson | 12:735 |
| Caesarean Section in Rural Communities; Carroll B. Warren | 2:96 |
| Cancer, Aids in Early Diagnosis of—The Biopsy; Edward J. Jordan | 9:520 |
| Cancer—Prostatic—Questions and Answers; Abel J. Leader | 9:515 |
| Cancer, Treatment of Pain from; Wallace P. Ritchie | 12:767 |
| Cervical Spine Injuries; James E. Watson, Jr. and Sylvester W. Thern | 11:686 |
| Childbirth, Natural; William S. Kroger | 8:484 |

| | |
|--|--------|
| Chloromycetin, Parenteral; Vince Moseley and Waddy G. Barod | 4:228 |
| Cholecystography, Oral, Prodxin in; Resburn W. Lominack | 3:165 |
| Circumcision, Lateral-Slit; H. A. Levin | 8:493 |
| Cytology in General Practice; Roland A. Loeb | 12:751 |
| Diabetes; Joseph H. Baratz | 2:67 |
| Diabetics, Insulin Dosage in; Wallace Marshall | 3:167 |
| Discs, Herniated, Intermittent Traction for; Bernard Judovitch and Golda R. Nobel | 1:31 |
| ENT Problems, Practical Management of Everyday; Noah D. Fabricant | 8:478 |
| Endameba Histolytica in General Practice; Eugene Carpenter | 3:129 |
| Fractures, Femoral Neck, A Simplified Technique for Nailing; George Bradley McNeely | 8:468 |
| Fundus Changes in Hypertension and Diabetes; Mortimer Mann | 6:350 |
| Gonorrhea, The Nodular; G. Turner Howard, Jr. | 5:277 |
| Gonorrhea, What Every General Practitioner Should Know About; Arnold S. Jackson | 4:216 |
| Headache, Symptomatic Treatment of—A New Agent; Robert E. Ryan | 5:291 |
| Heart, The, and Its Management in the Elderly Patient; Louis Fauquier Bishop | 1:23 |
| Heat, Use of, in General Practice; Keith C. Keeler | 5:281 |
| Hemorrhage, Traumatic Retroperitoneal; Bernard J. Ficarra | 7:436 |
| Hip, Dislocation of the, With Fracture of the Posterior Acetabular Rim; Howard Dodgson, Jr. | 7:431 |
| Hoarseness and Cancer of the Larynx; Richard W. Hancel | 7:421 |
| Hypertension; Paul E. Craig | 2:92 |
| Infant Care; Roy L. Cleere | 9:549 |
| Infantile Obstruction, Problems in; Philip Thorek | 12:773 |
| Lactation, Suppression of; Vincent P. and N. J. Marzola | 3:151 |
| Menopause, Management of; Ethel S. Dana | 4:221 |
| Mitral Stenosis, Surgical Correction of; Dwight E. Harken, James E. Dickson and Paul Otteson | 11:657 |
| Nasal Bleeding; Murdock Egan, Frank Buckner, George Roach, Robert Brown | 10:606 |
| Neurotic Patient, Problem of the; G. Con Smith | 9:546 |
| NPH Insulin; Barnett Greenghouse | 11:706 |
| Obesity; A. W. Pennington | 7:389 |
| Pancreatitis and Carcinoma of the Pancreas, Diagnostic Features of; James O. Burke | 11:690 |
| pH of the Skin, Modern Concepts Concerning the; Martin Barr | 2:106 |
| Peripheral Vascular Disease; John D. Hubert | 2:101 |
| Plastic Surgery, The Facelift Operation in; Albert P. Seltzer | 1:36 |
| Presacral Sympathectomy; Albert L. Evans, Olin S. Coffey and Hugh H. Gregory | 11:682 |
| Prostatectomy, Retropubic; Abel J. Leader | 1:1 |
| Rh Negative, Management of the, During Pregnancy; Martin S. Siebel | 9:532 |
| Rheumatic Disease; Lucius F. Hers | 5:297 |
| Safety, Child—A Doctor's Responsibility; Albert D. Kaiser | 6:359 |
| Senile Diabetes Mellitus; George C. Dowd | 9:537 |
| Spondylitis, Rheumatoid; S. Kent Comer | 6:345 |
| Stomach, Carcinoma of the; Henry W. Mayo, Jr. | 6:356 |
| Surgical Care for the General Practitioner; Raymond M. McNeely and Jacob A. Glassman | 5:257 |
| Therapy, Anticoagulant, in Myocardial Infarction; Shepard Shapiro | 7:413 |
| Thyroid Disease; Bernard J. Ficarra | 4:236 |
| Tularemia, Ulceroglandular; Herbert L. Levine | 4:233 |
| Ulcer, Peptic, Bleeding; Lindon Lee Davis | 9:558 |
| Ulcer, Peptic, Surgical Treatment of; Oley S. Jones | 3:145 |
| Urethritis, Non-Specific; David W. Davis | 2:105 |
| Urology, Rethinking Old Problems in; Frank S. Schoonover | 7:425 |
| Vaginal Bleeding at the Menopause; Edward N. Cartnick | 12:783 |

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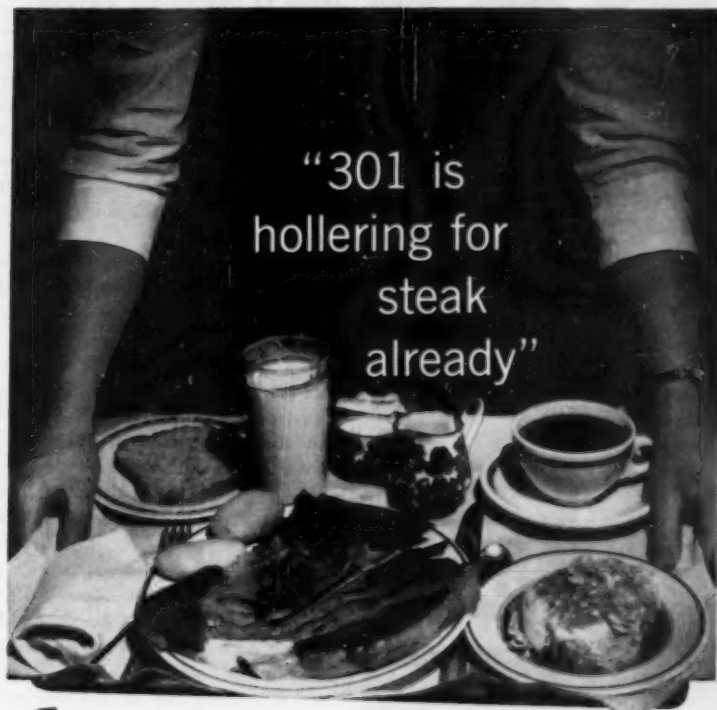
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1. Fan, C. L. Jr., et al.,
An Electrolyte Solution
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NEWS AND NOTES

—Continued from page 80a

Move to Implement Methods For Uncovering Hidden Ills

The use of doctors' offices to implement the valuable mass surveys of voluntary agencies and public health departments in uncovering chronic illnesses is being planned, it was announced here today by Dr. George F. Lull, Chicago, secretary and general manager of the American Medical Association.

The principal diseases uncovered by such surveys are tuberculosis, diabetes, high blood pressure, heart conditions and cancer, Dr. Lull said.

The new program will be furthered by a committee of six widely known physicians who will study case-finding methods and then develop plans to apply case-finding to office practice.

The appointment of the committee was made by the A. M. A. Board of Trustees on the recommendation of Dr. Sidney J. Shipman, San Francisco, president of the National Tuberculosis Association and chairman of the Council of the California Medical Association. The committee's aim, Dr. Shipman said, is to elevate further the level of medical care in this country.

In addition to Dr. Shipman, chairman, the committee is composed of Drs. Paul A. Davis, Akron, O.; Walter B. Martin, Norfolk, Va.; Leonard W. Larson, Bismarck, N. D.; David A. Wood, San Francisco, and Louis A. Buie, Rochester, Minn. Drs. Martin and Larson are members of the A. M. A. Board of Trustees.

The first meeting of the committee will be held soon.

Inositol, the Mystery Vitamin

Scientists wonder why vitamin C, essential in preventing scurvy, and inositol, whose nutritional role is not yet fully understood, exist together in large amounts

—Continued on page 84a

MEDICAL TIMES



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MODERN THERAPEUTICS

Effect of Terramycin and Aureomycin on Blood Coagulation

Conflicting reports on the effects of various antibiotics on the blood clotting mechanisms caused Parker and Wright to study the effects of aureomycin and terramycin on the clotting of blood in rabbits and in human subjects. In a report in *Science* [116:282 (1952)] the authors reported that 8 rabbits received an intravenous injection of 100 mg. of aureomycin glycinate and 8 received 100 mg. of terramycin glycinate. No significant changes in blood coagulation were noted after the injections in any of the animals.

Bleeding and clotting times were also performed on 30 patients, 11 of whom received 500 mg. of terramycin intravenously every 12 hours and the remainder of whom received 250 mg. of terramycin orally every 6 hours. In these human subjects there was, likewise, found no significant deviation from normal after the antibiotic had been given.

The authors concluded, on the basis of this study and clinical experience with both antibiotics on several hundred patients, that they had found no evidence of increased frequency of embolism following the administration of aureomycin and terramycin in recommended doses.

Massive Therapy With Vitamin B₁₂

Massive single weekly doses of 1,000 micrograms of vitamin B₁₂ were used in the treatment of patients with pernicious anemia in relapse. Thirteen of the patients had remissions and one failed to have a

complete remission. Seven additional patients were stabilized on conventional therapy and then changed to the massive therapy for 4 to 13 weeks. None of the latter patients gave evidence of improvement greater than that to be expected from the conventional use of liver extract or vitamin B₁₂.

Studies of urinary secretion showed that from 51 to 98 per cent of the injected dose was recovered in the urine within the succeeding 72 hours. Reisner and Weiner, therefore, concluded in *Bull. N. Y. Acad. Med.* [28:539 (1952)] that massive doses produced no prolongation of remissions greater than that by conventional doses of 50 micrograms or less of vitamin B₁₂.

Mepacrine in Rheumatoid Arthritis

Mepacrine (Quinacrine) apparently brought about marked improvement in 22 of 23 patients with rheumatoid arthritis. Beginning dosage varied widely but a dosage of 0.1 Gm. twice a day was finally decided upon. Therapy appeared to be necessary for about 4 weeks before improvement was noticed and had to be continued for 6 to 10 weeks before all signs of joint inflammation were lost.

Freedman and Bach reported in *The Lancet* [263: 321 (1952)] that all of the patients had had the disease for at least 2 years. Fourteen had been treated with salicylates only, 6 with cortisone, and 3 with gold therapy, prior to treatment with mepacrine. The only serious complication of mepacrine treatment was a widespread macular eruption in one patient who had received 0.8 Gm. daily for 4 days. The eruption disappeared about 1 week after therapy was discontinued and did not appear again when it was resumed with smaller doses.

Although this series of patients was uncontrolled, the authors felt that the improvement was a result of therapy with mepacrine.

—Continued on page 62

MEDICAL TIMES



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MODERN THERAPEUTICS

—Continued from page 60a

Chloromycetin in Shigella Dysentery

Chloromycetin was administered in doses of 30 mg. per Kg. of body weight to 96 patients with shigella dysentery while sulfadiazine was given in an initial dose of 2 Gm. and then 1 Gm. every 4 hours to 92 similar patients. The fever was found to disappear within 24 hours in the group receiving Chloromycetin and in an average of 2.2 days among those receiving sulfadiazine. Normal stools were passed in an average of 3.5 days and 5.6 days and the average time required for blood to disappear from the stools was 1.5 and 3.6 days, respectively. It was also found that negative stools were obtained in all 96 of the antibiotic-treated group within 4 days of treatment. However, only 83 of the 92 patients treated with sulfadiazine showed negative stools even after 5 days of treatment.

Therefore, McFadzean and Stewart, reporting in *The Lancet* [11:166 (1952)], concluded that Chloromycetin is more effective than sulfadiazine in the treatment of shigella dysentery.

Benemid Effective Aid in Endocarditis Case

A patient with recurrent bacterial endocarditis was treated with large and long-continued dosages of penicillin, streptomycin, chloramphenicol, and aureomycin without response. *Streptococcus faecalis*, an organism highly resistant to penicillin, was cultured from blood samples.

Baker and Pilkington reported in *The Lancet* [11:17 (1952)] that the patient was then treated with 4 mega units of penicillin every 3 hours with 1 Gm. of benemid every 6 hours for a total of 59 days. The authors stated that during treatment and thereafter the patient remained afe-

—Continued on page 66a

MEDICAL TIMES



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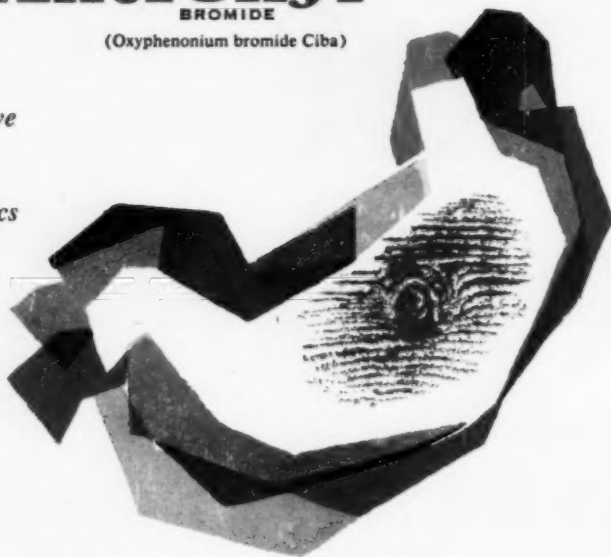


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MODERN THERAPEUTICS

—Continued from page 62a

brile and blood cultures were negative. They concluded that a complete cure was obtained with the aid of benemid. No toxic effects were observed except a slight abdominal discomfort.

Ear Infections Cleared By Antibiotics

Fifty-four patients with chronic sup-puration of the middle ear and mastoid were treated with the topical application of a powdered form of several antibiotics. The antibiotics were incorporated separately in a sterile lactose base in concentrations of 2,000 units of penicillin per Gm., 1 per cent streptomycin, 25 per cent chloramphenicol, and 2 per cent terramycin. Of the four antibiotics, Rutter and Ballantyne reported in *The Lancet* [11:314 (1952)], that terramycin proved to be the best. Of the 41 cases treated with terramycin 83 per cent became dry. The effectiveness was substantiated by follow-ups for up to 4 months.

The authors reported an interesting finding in that there was no uniform correlation between the *in vitro* sensitivity of the organisms and the clinical response to the drug. In 14 cases the bacteriological drug of choice failed to bring about any improvement, and in 10 cases terramycin was clinically successful in treating infections that were insensitive to it *in vitro*.

Penicillin Sterilized with Ethylene Oxide

The dry form or solutions of penicillin can be sterilized by exposing it to ethylene oxide vapor, according to a report by Philips, Kaye and Irminger in *J. Lab. and Clin. Med.* [40: 67 (1952)]. A solution of sodium penicillin G which was exposed to ethylene oxide gas for 6 hours was found

to be completely sterile while similar untreated samples contained approximately 1,500,000 spores. After sterilization the ethylene oxide is easily removed by warming in cotton-plugged container or by aeration.

There was no loss of potency or increase in toxicity of the penicillin preparations, as tested by injection into mice. However, streptomycin lost 35 per cent of its potency when in contact with the ethylene oxide, although there was no increase in toxicity.

Fatal Aplastic Anemia Associated With Chloramphenicol Therapy

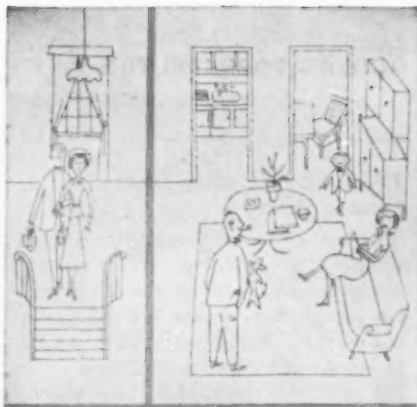
Although toxicity studies and extensive therapeutic use of chloramphenicol have shown this antibiotic to be of relatively low toxicity some workers have had apprehension with regard to its potential toxicity because of the presence of the nitrobenzene radical in the molecule. In the *J.A.M.A.* [149:912, 914, 918 (1952)] three articles reported on a total of 9 fatal cases of aplastic anemia associated with chloramphenicol therapy. Claudon and Holbrook reported that hematological complications developed in 2 elderly patients after a second course of chloramphenicol therapy had been started following an interval of several weeks.

Smiley, Cartwright and Wintrobe reported the cases of a 29-year-old man and 2 children. Each of these patients had received repeated small doses of the antibiotic at intervals over a period of 8 to 12 months.

Sturgeon reported the death of 4 children from aplastic anemia, who on previous occasions had received small doses of chloramphenicol for minor illnesses.

These cases, although circumstantial but not finally incriminating evidence of the role of chloramphenicol in aplastic anemia, point to the importance of careful control and observation in the use of this antibiotic in therapeutics.

—Continued on the following page



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need nutritional support

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Therapeutic Formula Vitamin Capsules Squibb

Each Capsule contains:



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| Vitamin A (synthetic) | 25,000 U. S. P. units |
| Vitamin D | 1,000 U. S. P. units |
| Thiamine Mononitrate | 10 mg. |
| Riboflavin | 5 mg. |
| Niacinamide | 150 mg. |
| Ascorbic Acid | 150 mg. |

Bottles of 30, 100 and 1000.

SQUIBB

"THERAGRAN" IS A TRADEMARK OF E. R. SQUIBB & SONS

MODERN THERAPEUTICS

—Continued from the preceding page

Vitamin B12 in Maintenance Anemia Therapy

A comparison of the effectiveness of vitamin B12 with liver extract in the maintenance therapy for pernicious anemia showed that vitamin B12 is as satisfactory as liver extract, according to Brewerton and Asher in *The Lancet* [II: 265 (1952)]. All of the 36 cases studied had been maintained with liver preparations for a period of at least a year and then they were changed to vitamin B12 for at least 20 months.

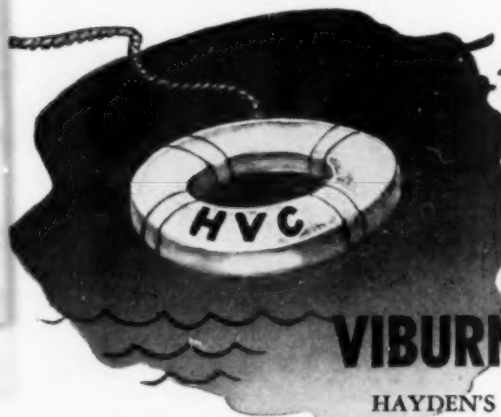
The patients had required an average of one injection of liver extract every 19 days. While on vitamin B12 one injection

was required on an average of every 21 days. At the end of 20 months of vitamin therapy there was no clinical evidence of deterioration in the condition of any of the patients. However, one patient complained of increased night cramps. All blood counts were found to be normal. In no case did the red blood cell count fall below 4,000,000 for women or 4,400,000 for men patients. The painful reactions to liver therapy experienced by some of the patients were found to disappear when the change was made to vitamin B12 therapy.

Viral Enteritis Cleared By Vitamin B Complex

All 19 of the patients with viral enteritis were cleared by the parenteral administration of 1 or 2 cc. of Folbesyn, a

—Continued on page 70a



...the rescue...

INTESTINAL CRAMPS
or DYSMENORRHEA

HAYDEN'S VIBURNUM COMPOUND

HAYDEN'S VIBURNUM COMPOUND has rescued millions from loss of time in the home, office or factory. Prescribed extensively for the relief of functional dysmenorrhea, intestinal cramps, or any smooth muscle spasm, HVC has proven its effectiveness over many years of usage.

HVC

Professional
Samples
On
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BEDFORD SPRINGS BEDFORD, MASS.



ALL's well, sleep-robbing cough has been arrested. Good triumphs over bad again. And it's a quiet night for the Junior Police.

Night-long freedom from cough can often be provided with a single bedtime dose of **PHENERGAN EXPECTORANT**.

This agreeably flavored new expectorant gives your patients the combined benefits of Phenergan, the *long-acting antihistaminic* that has *local anesthetic action*, plus an effective, time-tested *sedative-expectorant* prescription formula.

Now available with or without Codeine.



PHENERGAN[®]

EXPECTORANT

- **WITH CODEINE***

Promethazine Expectorant with Codeine

- **PLAIN (without codeine)**

Promethazine Expectorant

Supplied in bottles of 1 pint.

**Exempt Narcotic*

Vertavis-Phen

IN SEVERE HYPERTENSION

For a marked fall in blood pressure . . . over a prolonged period of time with smaller doses — the advantages of whole-powdered veratrum viride

Each VERTAVIS-PHEN tablet contains:

Whole-powdered Veratrum Viride . . . 130 C.S.R.*Units
Phenobarbital 1/4 grain

*Carotid Sinus Reflex (130 C.S.R. Units approximately equivalent to 10 Crow Units.)

SUPPLIED: Bottles of 100, 500, 1000 tablets.

IRWIN, NEISLER & COMPANY
DECATUR, ILLINOIS

MODERN THERAPEUTICS

—Continued from page 68a

polyvitamin preparation, each cc. of which contains 10 mg. of thiamine hydrochloride, B₆, and sodium pantothenate, 5 mg. of pyridoxine hydrochloride, 50 mg. of niacinamide, 300 mg. of ascorbic acid, 15 mg. of B₁₂, and 3 mg. of folic acid. Thirteen of the patients improved almost immediately, and the other 6 improved over a period of about 2 days. Improvement was judged on the basis of improved appetite and the elimination of loose stools, according to Murray in *Hawaii Med. J.* [11:289 (1952)].

Mepacrine Relieves Rheumatoid Arthritis

A preliminary report by Freedman and Bach in *The Lancet* [2:321 (1952)] indicated that the antimalarial, mepacrine, had been successful in relieving the rheumatoid arthritis in 22 of 23 patients. An optimum dose was found to be 0.1 Gm. twice a day. This dosage was continued for as long as 8 months, with 3 to 4 weeks required for the first evidence of improvement and 6 to 10 weeks before all signs of joint inflammation had disappeared.

The only serious complication noted was a widespread macular eruption in one patient who had received 0.8 Gm. of the drug daily for 4 days. This eruption cleared in about a week after therapy was discontinued. Therapy was then resumed with smaller doses. All patients treated also developed a yellow pigmentation of the skin.

Isoniazid Improves Tuberculosis Meningitis

Four children with tuberculous meningitis were improved by the administration of isoniazid, according to Sweetnam and Murphy in *The Lancet* [263:160

—Concluded on page 72a

MEDICAL TIMES

Question:

WHAT MAKES

Biphetacel

SUPERIOR?

Answer:

THE EXCLUSIVE

1:3 L/D RATIO!

"IN CURBING APPETITE and causing weight loss, a combination of Monobasic amphetamine phosphate containing a ratio of 1:3 of levo to dextro amphetamine (as found exclusively in Biphetacel) is more effective than the same amount of amphetamine contained in the racemic form where the ratio is 1:1 l/d . . ."

Because of its exclusive 1:3 l/d ratio, Biphetacel curbs appetite more effectively, without nausea or nervousness, in both vagotonic or "sluggish" and sympathicotonic or "high strung" patients. In addition, it preserves an "enough-to-eat" feeling by decreasing gastric motility and prolonging emptying time of stomach, and assures normal elimination by supplying evenly distributed, non-nutritive, "no clump" bulk. Small dosage means low treatment cost.

Each Biphetacel tablet contains the preferred 1:3 l/d ratio as provided by Racemic Amphetamine

*Freed, S. C. and Mizel, M.—in press

Phosphate Monobasic 5 mg. and Dextro Amphetamine Phosphate Monobasic 5 mg.; Metopine® (methyl atropine nitrate, Strassenburgh) 1 mg., Sodium Carboxymethylcellulose 200 mg.

Dosage: 1 tablet ½ hour before meals, three times daily, for the vagotonic type. Increase this dose, if necessary, to achieve the desired clinical results. ½ tablet ½ hour before meals, three times daily, for one week for the sympathicotonic type. If no signs of intolerance develop, increase to 1 tablet. Supplied in bottles of 100 and 1000 scored tablets.

For literature and supply for initiating treatment, write Medical Service Department, R. J. Strassenburgh Co., Rochester 14, N. Y.

PATIENTS RETAIN THEIR

ZEST FOR FOOD . . . BUT THEY

"Eat Less and Like It!"

Strassenburgh ■
FOUNDED IN 1896

MODERN THERAPEUTICS

—Concluded from page 70a

(1952)]. Two of the patients were treated with oral doses of 8 mg. per Kg. of isoniazid every 6 hours. Both responded promptly and effectively to therapy and were soon eating and playing well. Toxicity developed in one case after 8 weeks of therapy, but disappeared when therapy was discontinued.

Another case was started with 4 mg. per Kg. and increased to 16 gm. per Kg. When toxic symptoms of diarrhea, vomiting, and anorexia developed the treatment was discontinued. The toxic symptoms disappeared and the child remained well, but the regressed mental state present when therapy was started, did not improve. The 4th case had a slight, temporary improvement only.

Rheumatic Fever in Children Improved With ACTH

All of 18 children ranging in age from $3\frac{1}{2}$ to 15 years were markedly improved by the intramuscular administration of 1 to 2 International Units of ACTH per pound of body weight each day. As soon as the serum mucoprotein decreased toward normal the daily dose was reduced by decrements of 10 or 20 I.U. until the drug was discontinued. The only other medication given was 500 mg. of ascorbic acid daily and penicillin as a prophylactic.

Kelley reported in *A.M.A. Am. J. Dis. Children* [84:151 (1952)] that within 12 to 24 hours after the start of ACTH therapy the arthritis showed improvement. Follow-up studies showed that 13 of the children had no residual evidence of cardiac involvement and 5 had grade one mitral systolic murmurs.

Pertussin — A Valuable Aid in Cough Therapy

PERTUSSIN is specifically designed to alleviate useless cough and tussal insufficiency. It acts as a stimulant expectorant which facilitates the removal of viscid adherent mucus.

This liquefying action is due to stimulation of the secretory glands in the bronchial tree, changing the dry useless cough to an easy productive cough.

The increase in respiratory tract fluid also tends to improve ciliary action and aids in the removal of stagnated, often infectious mucus. This removal of tenacious secretions is the most important method by which adequate function can be restored and a normal physiological state re-established. Useless cough is thereby put to work and tussal insufficiency corrected.

PERTUSSIN's pleasant taste, its local soothing properties and freedom from digestive tract irritation make it ideal for use by both children and adults.

PERTUSSIN is based on a single active ingredient which is derived from Thyme leaves by a special process. It is an ideal vehicle because it contains no narcotics or harmful ingredients. It may be prescribed along with other medication without any undesirable side action.

For over 40 years this product has maintained a leading position as an effective agent in cough therapy, particularly for coughs in bronchitis, paroxysms of bronchial asthma, whooping cough and all coughs due to colds.

Note: Samples of PERTUSSIN will be gladly sent on request to Seck & Kade, Inc., 400 Washington Street, New York 13, N. Y.

**"AGE IS A MATTER OF FEELING,
NOT OF YEAR."**

George William Curtis

Age is not so much a chronologic destiny as a measure of physiologic disability. That is why aging may often become premature as a result of waning sex hormone metabolism, nutritional inadequacy, and emotional instability. "Mediatric" Capsules—combining steroids, nutritional supplements, and a mild antidepressant—may be expected to play an important part in safeguarding health and vigor to insure "normal aging" for a "normal old age."

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"MEDIATRIC" CAPSULES

steroid-nutritional compound

Each "Mediatric" Capsule contains:

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| Conjugated estrogens equine ("Premarin") | 0.25 mg. |
| Methyltestosterone | 2.5 mg. |
| Vitamin C (ascorbic acid) | 50.0 mg. |
| Thiamine HCl (B ₁) | 5.0 mg. |
| Vitamin B ₁₂ U.S.P. (crystalline) | 1.5 mcg. |
| Folic acid | 0.33 mg. |
| Ferrous sulfate exsic. | 60.0 mg. |
| Brewers' yeast (specially processed) | 200.0 mg. |
| α -Desoxyephedrine HCl | 1.0 mg. |

Supplied:

No. 252 is available in bottles of 30, 100, and 1,000.



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New York, N. Y. Montreal, Canada

NEWS AND NOTES

Study of Impact of TV Crime Shows on Children Is Urged

Sponsorship by the television industry of medical research projects to determine the effects of crime programs on children was urged editorially in the recent issue of *The Journal of the American Medical Association*.

"Unfortunately, astonishingly little research has been done on the medical and psychological impact of television on children," the Journal said.

"For its own self interest, the tele-

vision industry would do well to acknowledge the adverse medical and psychological implications found in many crime-and-horror programs. It should foster research on the impact of television on mind and body, and should make a sustained effort to avoid programming shows potentially dangerous to the health of the nation's children.

"Indeed, the television industry would be well advised to accomplish this voluntarily and as rapidly as possible in order to neutralize the growing hue and cry for government regulation and its attendant evils of censorship.

There is more to the problem than the proposal made by one Congressman, who replied to the demand of an irate mother that he do something about television by declaring: 'Did you ever think of turning the damned thing off?'"

—Continued on page 76a

Through The Menstrual Years of Life-

THE frequency with which the menstrual life of so many women is marred by functional aberrations that pass the borderline of physiologic limits, emphasizes the importance of an effective uterine tonic and regulator in the practicing physician's armamentarium.

In ERGOAPIOL (Smith) with SAVIN the action of all the alkaloids of ergot (prepared by hydro-alcoholic extraction) is synergistically enhanced by the presence of apiol and oil of savin. Its sustained tonic action on the uterus provides welcome relief by helping to induce local hyperemia, stimulating smooth, rhythmic uterine contractions and serving as a potent hemostatic agent to control excessive bleeding.

May we send you a copy of the booklet "Menstrual Disorders", available with our compliments to physicians on request.

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ERGOAPIOL (SMITH) with SAVIN

THE PREFERRED UTERINE TONIC

INDICATIONS

menstrual disorders, dysmenorrhea, amenorrhea, menorrhagia, excessive bleeding, etc.

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1-2 cap. 3-4 times daily

SUPPLIED

in bottles of 10 and 25 cap.



NEW

Pfizer Steraject Syringe

holds 2 cartridge sizes



Steraject Penicillin G
Procaine Crystalline
in Aqueous Suspension
(300,000 units)



Steraject Penicillin G
Procaine Crystalline
in Aqueous Suspension
(1,000,000 units)



Steraject Combiotic*
Aqueous Suspension
(400,000 units Penicillin G
Procaine Crystalline,
0.5 Gm. Dihydrostreptomycin)



Steraject Dihydrostreptomycin
Sulfate Solution (1 gram)



Steraject Streptomycin
Sulfate Solution (1 gram)



2 cartridge sizes for only 1 syringe!

two cartridge sizes permit full
standard antibiotic dosage
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for full details, ask your Pfizer
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Steraject Cartridges:
each one supplied with
sterile needle, foil-wrapped

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world's largest producer of antibiotics

for
the patient
coughing himself
into
knots...



palatable

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Trademark

[EXPECTORANT COUGH SYRUP SCHENLEY]

combines the decongestive value of ephedrine, the antihistaminic effect of pyrilamine maleate, and the expectorant action of calcium cresol sulfonate in a pleasant, soothing liquid vehicle. Quickly relieves unproductive coughing and congestion in colds, asthma, bronchitis, vasomotor rhinitis, and hay fever.

Available at all pharmacies.

SCHENLEY LABORATORIES, INC.
LAWRENCEBURG, INDIANA

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NEWS AND NOTES

—Continued from page 74a

The Journal cited a survey, made by *TV Magazine*, of television programs on Los Angeles stations during the week of May 24-30. The survey showed the stations carried 852 major crime incidents, in addition to innumerable saloon brawls, sluggings and assaults, and other "minor" acts of violence. Seventy-eight per cent of the crime deluge was presented on programs for children, with 85 per cent of the programs televised before 9 p.m., it added.

Also cited was a survey, made prior to the development of television, on the effects of radio and movie crime programs on 120 boys and 60 girls, 6 to 16 years of age. Common reactions included retiring to the mother's bed for comfort and reassurance, screaming, pulling bed-covers over the head, burying the head under the pillow, or diving under the covers, "there to spend an uneasy night plagued by vivid recollections."

In addition, this survey pointed out that terrifying crime scenes frequently produce adverse effects on the organs of the body, as reflected in diminished food intake and consequent inability to gain weight, troublesome dreams, restless sleep, and scholastic difficulties at school.

"These findings," the Journal stated, "apparently apply equally well to television."

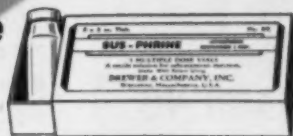
The editorial said that many questions regarding the effect of television crime programs on children require answering, immediately and continuously, and that this "would aid the orderly growth of television."

"In all fairness, most physicians will agree that television, the movies and radio are not harmful in themselves," the Journal added. "All three mediums of mass communication have often presented out-

—Continued on page 80a

INTRODUCING...
a new 2 cc. vial package

in addition to
the 5 cc. size
individually packed



5 vials to package



For the prolonged relief of
BRONCHIAL ASTHMA

SUS-PHRINE

AQUEOUS EPINEPHRINE SUSPENSION 1-200

Brewer

For the First Time

For the patient's

COMFORT

RELIEF

ECONOMY

Epinephrine is available in an aqueous SUSPENSION
To be injected SUBCUTANEOUSLY.

Sus-Phrine, an aqueous suspension of epinephrine, is injected subcutaneously in doses of 0.1 to 0.3 cc. The slower absorption and longer action of the suspension requires fewer injections.

Sus-Phrine begins to be absorbed as soon as it is injected, and because it is a suspension, absorption takes place over a prolonged period and therefore it has a distinct advantage over aqueous solutions for subcutaneous injection.

Sus-Phrine is a specially processed stable suspension of epinephrine to make possible its packaging in 2 cc. multiple-dose vials (five to a package) and in 5 cc. vials (individually packaged) at a saving in cost to both physician and patient.

References:

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N.E.J. Med. 227: p. 736.
2. Unger, A. H., and Unger, L.
G.P. 4:79 Dec. 1951
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Annals of Allergy (March-April) 1952

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3

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- Effective in diarrhea of infants, children and adults
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Resinat 0.5 Gm.
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- 2 Speeds healing of peptic ulcer
- 3 Attracts and binds both pepsin and hydrochloric acid
- 4 Blocks spasm: relaxes the gastrointestinal tract
- 5 Coats the crater with a protective film
- 6 Does not cause acid rebound, alkalosis, constipation or diarrhea
- 7 Does not remove chlorides, phosphates, minerals or vitamins
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Available: Bottles of 36, 100 and 1,000 tablets.

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- ▲ To reduce blood pressure in hypertension
- ▲ To relieve edema in hypertension, congestive heart failure and cirrhosis
- ▲ Controls sodium absorption with minimal dietary restrictions
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Available: Powder, 10 ounce bottles and boxes of 24 individual 10 gram packets.

In G.I. infections—diarrhea—nausea of
pregnancy

In peptic ulcer

In hypertension, congestive heart failure
and cirrhosis

NEWS AND NOTES

—Continued from page 76a

standing educational and entertaining programs.

"Yet, the manner in which crime in these mediums is brought before the eyes and ears of American children indicates a complete disregard for mental, physical and social consequences."

Says New Drug Curbs Excessive Sweating

Excessive sweating caused by emotional factors may be diminished by daily doses of a relatively new drug, mephobarbital (mebaral, trade mark), another of the barbiturates. The drug is obtainable only on a doctor's prescription.

Hyperhidrosis, or excessive sweating, is an annoying and frequently embarrassing symptom that is difficult to control, Dr.

Wilson G. Scanlon, of the Silver Hill Foundation, New Canaan, Conn., wrote in a recent issue of the A.M.A. Journal.

Dr. Scanlon described two cases in which the drug effectively reduced excessive sweating after several other drugs usually employed in such cases had failed to do so. Although the selective action of this drug is not clear, it is suggested that its effectiveness lies in its ability to adequately reduce the activity of the rear portion of the forebrain, which is believed to regulate anxiety and sweating, he said.

Dr. Scanlon recommended that the drug be used in cases in which emotional factors clearly participate in the production of excessive sweating, and when the hyperhidrosis has not diminished with psychotherapy in proportion to other symptoms.

Daily doses of the drug required to reduce excessive sweating, 0.2 to 0.4 grams, rarely cause toxic side-effects, he added.

—Continued on page 82a

LAVORIS
REG. U.S. PAT. OFF.
MOUTHWASH AND GARGLE

So much more than
merely a mouth rinse . . .

Tangy with
Oils of Cinnamon
and Cloves



ACTIVE INGREDIENTS
Zinc Chloride - Menthol
Formaldehyde - Saccharine
Oil Cinnamon - Oil Cloves
Alcohol 5%



Actually!

Lavoris acts both chemically and mechanically to break up and flush out the germ-harboring, odor-producing mucus accumulations from mouth and throat. It stimulates capillary circulation with attending improvement of tissue tone and resistance.

DOES A THOROUGH JOB SO PLEASANTLY

"Adoption of these control measures
now is warranted by the evidence so
far obtained" . . .



Now Therapeutic or Prophylactic Management in ATHEROSCLEROSIS-DIABETES CORONARY DISEASES

GERICAPS

(SHERMAN)



Each capsule supplies the true
lipotropics (choline and inositol)
approximately equivalent to one
gram—choline dihydrogen cit-
rate, also Vitamin A and the B-
Complex factors, together with
rutin and Vitamin C in adequate
amounts.

● The Gericaps formula makes possible a double
use (Prophylactic and therapeutic) in the management
of conditions of impaired metabolism of fat and chol-
esterol.

The lipotropics in Gericaps enter into the bio-synthesis
of phospholipids, helping to bring about a better *bal-
anced ratio* of cholesterol and phospholipids, which
has been suggested as more important than the actual
cholesterol level itself.

The low fat and cholesterol diet indicated is supple-
mented with adequate vitamins in the Gericaps for-
mula, to compensate for the possible deficiencies
caused by this restricted diet.

Gericaps contain therapeutic amounts of the factors to
combat capillary weakness (rutin and Vitamin C) so
often associated with abnormal cholesterol and fat
metabolism.

SHERMAN LABORATORIES
BIOLOGICALS • PHARMACEUTICALS
WINDSOR DETROIT 15, MICH. LOS ANGELES

NEWS AND NOTES

—Continued from page 82a

in the same material. A study at Yale Nutritional Laboratory shows that citrus fruits, a prime source of vitamin C, also have an abundance of inositol. "This compound is a potentially important dietary factor," report Drs. W. A. Krehl and George R. Cowgill, *Food Research*, the investigators. Inositol forms part of the enzyme, pancreatic amylase, and may be the reserve six-carbon compound that serves as a precursor for vitamin C in the growing plant.

Heart Disease Called Needless Bar To Successful Employment

Contrary to widespread opinion among employers and the public generally, persons with heart disease are "usually capa-

ble of being successfully employed and performing effective jobs," Dr. Theodore G. Klumpp, president of Winthrop-Stearns Inc., pharmaceutical manufacturers, pointed out at the 23rd Annual Assembly of the District of Columbia Medical Society.

Dr. Klumpp, Chairman of the Task Force on the Handicapped organized by the U. S. Office of Defense Mobilization, participated in a panel discussion of the subject, "The Three R's of Heart Disease—Research, Recovery and Re-employment," arranged by the American Heart Association as part of the medical society's public meeting. Preceding the panel discussion, former Governor Keen Johnson of Kentucky, spoke.

In response to questions directed at the panel, Dr. Klumpp emphasized that the public has "a false conception and a false horror of anything to do with heart disease,

—Continued on page 89a

The Vicious Cycle in Rheumatic Diseases...

Dioloxol very frequently short-circuits this cycle, providing symptomatic relief in as little as forty-five minutes. Continued Dioloxol therapy, alone or in conjunction with correctional measures, often yields effective and lasting alleviation of the painful discomforts of muscle spasm associated with rheumatic disorders.

Dioloxol

BRAND OF METHYLOXOL

Specialty prepared, fast-disintegrating Dioloxol tablets make the rapidly-metabolized drug available for absorption almost immediately.

Tablets: 0.5 Gm. / Elixir: 0.1 Gm. per cc.

Provides muscle relaxation and sedation without hypnosis... safely

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the **most widely used**
 ethical specialty for
 care of the **infant's skin**



DESITIN OINTMENT



the pioneer external
 cod liver oil therapy

Decisive studies^{1,2}
 substantiate over 25
 years of daily clinical
 use regarding the ability of Desitin
 Ointment to protect, soothe,
 dry and accelerate healing in . . .

- diaper rash • exanthema
- non-specific dermatoses
- intertrigo • prickly heat
- chafing • irritation

(due to urine, excrement, chemicals or friction)

Desitin Ointment is a non-irritant blend of high grade, crude Norwegian cod liver oil (with its unsaturated fatty acids and high potency vitamins A and D in proper ratio for maximum efficacy), zinc oxide, talcum, petrolatum, and lanolin. Does not liquefy at body temperature and is not decomposed or washed away by secretions, exudate, urine or excrements. Dressings easily applied and painlessly removed.

Tubes of 1 oz., 2 oz., 4 oz., and 1 lb. jars

write for samples and literature

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 70 Ship Street • Providence 2, R. I.

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for intranasal infections

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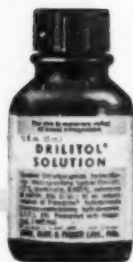
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'Drilitol Spraypak'—the new form of 'Drilitol'

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NEWS AND NOTES

Continued from page 84a

the popular view being that it carries the threat of death." The fact was, Dr. Klumpp noted, that most heart disease is not associated with sudden death. "The record of patients with heart disease in industry is good," he said, "and their success in performing work is better than the average of healthy workers."

Dr. Klumpp warned that our erroneous view of the effect of heart disease on the employability of those who have it adds needlessly to the already staggering economic and human loss due to heart disease. "This economic loss," he said, "is estimated to have been \$1,400,000,000 in 1951, while annually, 176,000,000 work days are lost."

Appointments

Appointment of Drs. Erika Fromm and Louis Halperin to the faculty of the University of Illinois College of Medicine with the rank of clinical assistant professor has been announced by Dean Stanley W. Olson.

Dr. Fromm has been appointed as clinical assistant professor of psychology in the Department of Otolaryngology. She is directing the psychological part of the Department's project on the diagnosis, psychotherapy, and educational handling of the brain-injured child.

Dr. Halperin, a staff psychiatrist at the Veterans Administration Mental Hygiene Clinic in Chicago, will be associated with the Department of Psychiatry. He will teach students and residents and supervise their cases in the Outpatient Clinic of the Department.

Dr. Philip A. Boyer, associate medical director of Schenley Laboratories, Inc., has been appointed a member of the Committee on Resident Fellowships of the

—Continued on page 90a



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¹Carotid Sinus Reflex

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NEWS AND NOTES

—Continued from page 88a

American College of Chest Physicians, according to announcement by Dr. Andrew L. Banyai, president of the medical group.

Purpose of the committee is to establish fellowships in the United States for physicians from other countries. Governors and regents in 63 countries, where there are College members, are cooperating in the program.

American Academy of Ob-Gyne. Holds First Clinical Session

The First Annual Clinical Session of the American Academy of Obstetrics and Gynecology will be held December 15-17 at the Palmer House, Chicago.

The meeting will feature six general sessions and 48 discussion groups of 40 Fellows each. There also will be at least 15 new scientific exhibits and about 60 technical displays.

The annual banquet Tuesday evening, December 16, will feature an address by the retiring president, Carl P. Huber of Indianapolis. The first truly national organization in its field, the Academy was incorporated August 14, 1951, and already has some 2400 qualified Fellows.

Election of officers will take place at the annual business meeting Tuesday morning.

Program chairman is Ralph A. Reis.

American College of Surgeons Sectional Meetings

An impressive program of symposia, panel discussions, clinical conferences and medical motion pictures on practical surgical problems will open the 1953 season of Sectional Meetings of the American College of Surgeons at The Netherlands Plaza Hotel in Cincinnati, Ohio, January 19-21. This meeting is the first of eight scheduled for various parts of North and South America during the coming year.

—Concluded on page 92a

MEDICAL TIMES

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Bibliography: (1) Comperon, M.: J. Invest. Dermat. 13:35, 1949. (2) Park, S. M., and Mitchell-Reider, T. J.: New York State J. Med. 50:1934, 1950. (3) Soder, A. A.: Quart. Rev. Int. Med. & Dermat. 9:3, 1951. (4) Johnson, S. M., and Bringe, J. W.: Arch. Dermat. & Syph. 63:796, 1951. (5) Hinch, J. M.: Clinical Appraisal of a New Antipruritic (N-ethyl-o-crotonotoluide), to be published. (6) Tobias, N.: C. P. 4:43, 1951. (7) Domenjon, B.: Schweiz. med. Wchschr. 70:1210, 1946. (8) Patterson, B. L.: South. M. J. 43:449, 1950. (9) Ferrer, H. E., Jr.: J. Nat. M. A. 43:167, 1951. (10) Hand, E. A.: J. Michigan M. Soc. 49:1286, 1950. (11) Tronstein, A. J.: Ohio State M. J. 43:809, 1949.

^{*}U.S. Pat. #2,566,681

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NEWS AND NOTES

—Concluded from page 90a

M. M. Zinninger, M.D., F.A.C.S., Cincinnati, Chairman of the Committee on Local Arrangements and Professor of Surgery, University of Cincinnati College of Medicine, will preside at the opening meeting Monday morning, January 19, at 10:00 a.m.

A special feature of this Sectional Meeting will be the showing of selected Ciné Clinic films, from the program of the New York Clinical Congress. January 21 will be devoted to a schedule of clinics at Cincinnati's leading hospitals.

Other Sectional Meetings will be held this year in Atlanta, Georgia, February 23-24; Boston, Massachusetts, March 2-5; Salt Lake City, Utah, March 20-21; Oklahoma City, Oklahoma, March 24-25; Los Angeles, California, March 30-31; Calgary, Alberta, April 23-24. The first Inter-American Session will be held in Sao Paulo, Brazil, February 9-12.

Professional Staff Ready

The University of Illinois College of Medicine has signified its intent to furnish the professional staff for a 1,000-bed general hospital if this country should become involved in a war, Dean Stanley W. Olson has announced.

This action was taken by the Executive Committee of the College of Medicine following receipt of an invitation from Major General George E. Armstrong, surgeon general of the U. S. Army.

Under this plan, the 1,000-bed general hospital would be activated on M-Day plus 12 months. The University would furnish the trained personnel for the medical and dental professional staff, and as much of the nursing and ancillary professional staff for such a unit as possible.

The University of Illinois assumed a rather similar responsibility in World War II.



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1. McLester, J. S.: Nutrition and Diet in Health and Disease. Ed. 5 (Philadelphia: W. B. Saunders and Co.) 1949, p. 636.

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—Concluded on page 96a

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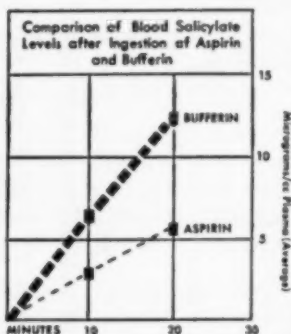
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2. Gastric Tolerance for Aspirin and Buffered Aspirin. Ind. Med. 20:486, Oct. 1951

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| Abbott Laboratories | 56a | Larus & Bros. Co. | 62a |
| Alkaloi Co., The | 92a | Lavoris Co., The | 80a |
| American Journal of Proctology | 98a | Leeming & Co., Inc., Thos. | 100a |
| Ames Co. | 41a | M & R Laboratories | 36a |
| Armour Laboratories, The | 37a, 53a, 65a | Medical Art and Slide Service | 98a |
| Amar-Stone Laboratories, Inc. | 94a | Merck & Co., Inc. | 28a |
| Ayerst, McKenna & Harrison, Ltd. | 26a, 73a | National Drug Co. | 78a, 79a |
| Bard-Parker Co. | 16a | Nesera Chemical Co., Inc. | 40a |
| Barnes Sanitarium | 94a | New York Pharmaceutical Co. | 48a |
| Becton, Dickinson & Co. | 3a | Numotizine, Inc. | 63a |
| Brewer & Co., Inc. | 41a, 77a | Organon, Inc. | 18C |
| Bristol Laboratories | 27a | Ortho Pharmaceutical Corp. | opposite pg. 54 |
| Bristol-Myers Co. | 6a, 97a | Parke Davis & Co. | 23a |
| Carbisulphoil Co. | 92a | Patch Co., E. L. | 46a |
| Carnation Co. | 52a | Pfizer & Co., Chas. | 2a, 75a |
| Carrick, Inc., G. W. | 84a | Professional Printing Co. | 69a |
| Chatham Pharmaceuticals, Inc. | 55a | Roeig & Co., J. B. | 19a, 93a |
| Chilcott Laboratories | 33a | Rystan Co., The | 45a |
| Ciba Pharmaceutical Products | 54a, 57a, 64a | Schenley Laboratories | 76a |
| Crookes Laboratories, Inc. | 48a | Schering Corp. | 17a, 25a |
| Cutter Laboratories | 81a | Seck & Kade, Inc. | 72a |
| Davis & Geck, Inc. | 30a, 31a, 42a | Sharp & Dohme, Inc. | 8C |
| Desitin Chemical Co. | 85a | Sherman Laboratories | 47a, 83a |
| Doho Chemical Corp. | 34a | Shield Laboratories | 75a |
| Fellows Medical Mfg. Co. | 35a | Smith Co., Martin H. | 74a |
| Fougera & Co., Inc., E. | 39a | Smith, Kline & French Labs. | 15a, 86a, 87a |
| Geigy Pharmaceuticals | 20a, 21a, 91a | Squibb & Sons, E. R. | 66a, 67a |
| General Pharmacal Corp. | 14a | Strassenburgh Co., R. J. | 29a, 71a |
| Grant Chemical Co. | 10a | Strong Co., F. H. | 68a |
| Hanovia Chemical & Mfg. Co. | 38a | Stuart Co., The | opposite pg. 22a |
| Hart Drug Co. | 18a | Upjohn Co., The | 61a |
| Hoffmann-La Roche, Inc. | IFC, opposite pg. 80a | Vascular Pharmacal Co. | 92a |
| Irwin Neisler & Co. | 70a, 82a, 90a | Warner-Hudnut, Inc. | 24a |
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THE SAMPLE Freedom-Gram above can be your message of truth and hope to the enslaved millions behind the Iron Curtain.

Your signature and those of millions more Americans are needed now on Freedom-Grams such as this. Millions of these personal messages will be sent to the Communist-dominated people behind the Iron Curtain as pledges of our common hope for a free world.

This year the Crusade for Freedom is endeavoring to raise \$4,000,000 which will be used to support Radio Free Europe and Radio Free Asia.

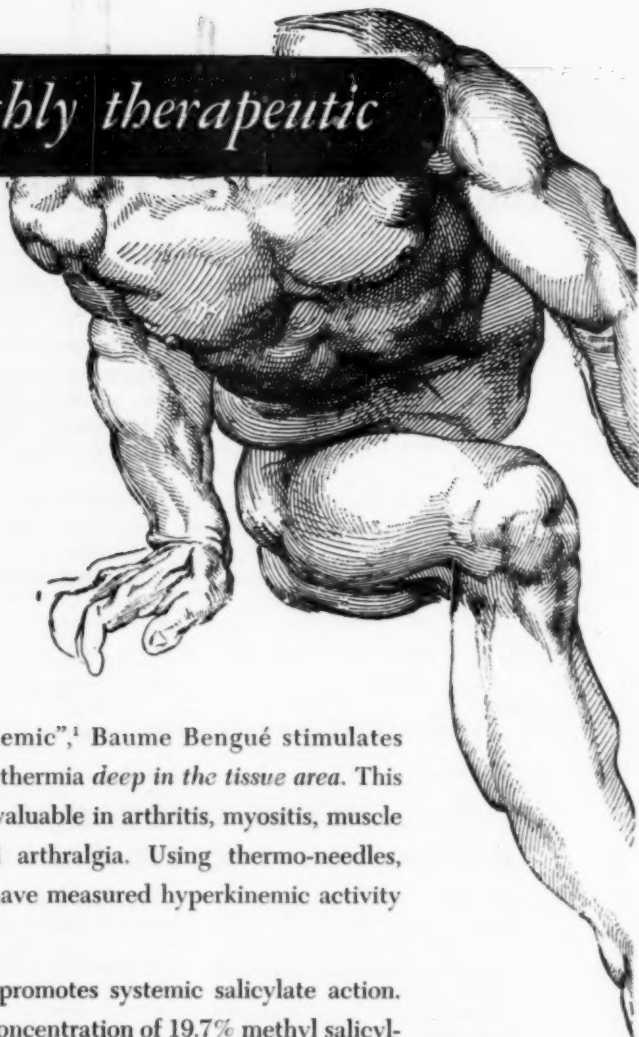
These stations are playing an important part in the fight to win the cold war—and avert the hot war. Already the Communists

are desperately trying to stop the steady stream of truth which is penetrating the Iron Curtain. They are failing, and will continue to fail as long as these powerful stations are kept on the job. Will you help in this most important of campaigns?

Mail above Freedom-Gram to Crusade for Freedom, c/o your Local Postmaster, enclosing any contribution you wish to make. You may receive grateful replies. If you should be unable to translate them, free translations may be obtained by forwarding them to the same address. Send your Freedom-Gram today!

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I. Lange, K., and Weiner, D.: J.
Invest. Dermat. 43:263 (May) 1949.

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1. Hyman, H. T.: An Integrated Practice of Medicine, Vol. IV, W. B. Saunders, Philadelphia, Pa., 1947, p. 3836.

2. Goodman, L. and Gilman, A.: The Pharmacological Basis of Therapeutics, The Macmillan Company, New York City, 1941, p. 176.